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ORAL PENICILLIN

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The early studies on the absorption of penicillin indicated that most of an orally administered dose is probably destroyed by the acidity of the normal stomach. Nevertheless, the small amounts recovered from the urine and the demonstration of activity in the serum suggested that some absorption does take place.[1] When, more recently, doses of 100,000 units were given on an empty stomach, the amounts excreted in the urine were the same as or larger than the quantities usually given in a single intramuscular injection,[2] suggesting that the oral method is feasible if larger doses are used. A number of antacids, buffers, capsules and oils have been used in attempts to protect the penicillin from the acidity of the stomach. These, as well as substances intended to increase absorption, have given conflicting results.[3] Almost all workers found wide variations in absorption by different persons. Although some have suggested that the use of one or another of the adjuvants with oral penicillin resulted in absorption of amounts approximating those obtained from similar doses given intramuscularly, most of them found that from two and one-half to five times as much penicillin is required when given by mouth. In persons with achlorhydria there is more complete absorption from the stomach.[4] Some of the recent studies have also indicated that, when a dose is given after a meal, lower serum levels are obtained and less penicillin is recovered from the urine than when the same dose is given before a meal.[5] Preliminary clinical trials in small numbers of cases of pneumonia[6] and in gonococcic and other miscellaneous infections[7] have suggested that oral therapy may be feasible.

In this paper are presented the results of a study of the effective absorption of penicillin after oral administration as indicated by the levels in the serum. Several preparations were compared in single doses in the same individuals, both normal persons and persons with achlorhydria. The results of a preliminary clinical trial in patients with acute gonorrhea and with pneumococcic pneumonia will also be summarized.

MATERIALS AND METHODS

The subjects used as controls in this study were members of the laboratory staff. One of them (subject D) had a history of peptic ulcer and had gastric hyperacidity and hypermotility. The achlorhydric subjects were patients with pernicious anemia who were in various stages of remission induced by active antianemia substances. The penicillin was taken either one-half hour before or after breakfast was started. Blood was drawn at one-half, one, two, three and four hours after a dose or at other intervals when indicated. Serum levels were done by the serial dilution method of Rammelkamp[8] using the same strain of hemolytic streptococcus, No. 98, but with human group O cells as an indicator to avoid heterogenetic hemolysis. The smallest amount of penicillin detected when 0.5 cc. of serum was added to 0.5 cc. of the culture was 0.0156 unit per cubic centimeter (recorded for brevity as 0.02 unit per cubic centimeter). When 0.2 cc. of serum was used, the smallest amount detected was approximately 0.03 unit per cubic centimeter.

The oral preparations were supplied by Lederle Laboratories, Inc., Hoffman-LaRoche, Inc., and Commercial Solvents Corporation. A small supply of commercial penicillin sodium for use with aluminum hydroxide gel (Creamalin) was supplied by the Winthrop Chemical Company. Capsule A contained 15,000 units of crude calcium penicillin mixed with shellac, beeswax and cottonseed oil. Powder A was the crude penicillin powder used to make capsule A. Capsule B contained 25,000 units of calcium penicillin in corn oil. Tablet C contained 30,000 units of calcium penicillin with a highly soluble binder. Capsule D con-

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital and the Department of Medicine, Harvard Medical School.

1. Abraham, E. P.; Florey, H. W.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G., and Jennings, M. A.: Further Observations on Penicillin, Lancet **2**: 177 (Aug. 16) 1941. Florey, M. E., and Florey, H. W.: General and Local Administration of Penicillin, ibid. **1**: 387 (March 27) 1943. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion, and Distribution of Penicillin, J. Clin. Investigation **22**: 425 (May) 1943.

2. Free, A. H.; Leonards, J. R.; McCullough, D. R., and Biro, B. E.: The Urinary Excretion of Penicillin After Oral Administration to Normal Human Subjects, Science **100**: 431 (Nov. 10) 1944.

3. Little, C. J. H., and Lumb, George: Penicillin by Mouth, Lancet **1**: 203 (Feb. 17) 1945. Krantz, J. C., Jr.; Evans, W. E., and McAlpine, J. G.: Oral Penicillin with Basic Aluminum Aminoacetate, Science **101**: 618 (June 15) 1945. Perlstein, D.; Kluener, R. G.; Liebmann, A. J., and Dorrell, J.: Oral Administration of Penicillin in Corn Oil and Lanolin, Science **102**: 66 (July 20) 1945. Welch, Henry; Price, C. W., and Chandler, V. L.: Prolonged Blood Concentrations After Oral Administration of Modified Penicillin, J. A. M. A. **128**: 845 (July 21) 1945. Libby.[5] McDermott, Bunn, Benoit, Dubois and Haynes.[6] Charney, Alburn and Bernhart.[5] György, Vandergrift, Elias, Colis, Berry and Pilcher.[7] Cutting, Halpern, Sultan and Armstrong.[4] Burke, Ross and Strauss.[5]

4. Cutting, W. C.; Halpern, R. M.; Sultan, S. H., and Armstrong, C. A.: Oral Penicillin, Federation Proc. **4**: 115 (March) 1945. Rammelkamp, C. H., and Helm, J. C., Jr.: Studies on the Absorption of Penicillin from the Stomach, Proc. Soc. Exper. Biol. & Med. **54**: 324 (Dec.) 1943.

5. Libby, R. L.: Oral Administration of Penicillin in Oil, Science **101**: 178 (Feb. 16) 1945. Charney, J.; Alburn, H. E., and Bernhart F. W.: Urinary Excretion of Penicillin in Man After Oral Administration with Gastric Antacids, ibid. **101**: 251 (March 9) 1945. Burke, F. G.; Ross, Sidney, and Strauss, Clifton: Oral Administration of Penicillin, J. A. M. A. **128**: 83 (May 12) 1945.

6. McDermott, Walsh; Bunn, P. A.; Benoit, Maria; Dubois, Rebeckah, and Haynes, Willetta: Oral Penicillin, Science **101**: 228 (March 2) 1945.

7. György, Paul; Vandergrift, H. N.; Elias, William; Colis, L. G.; Berry, F. M., and Pilcher, J. D.: Administration of Penicillin by Mouth, J. A. M. A. **127**: 639 (March 17) 1945.

8. Rammelkamp, C. H.: A Method of Determining the Concentration of Penicillin in Body Fluids and Exudates, Proc. Soc. Exper. Biol. & Med. **51**: 95 (Oct.) 1942.

tained 25,000 units of sodium penicillin. The two latter preparations each contained a buffer and other solids, the nature of which the makers prefer to keep as a trade secret. Aluminum hydroxide gel was used by mixing three parts with two parts of the saline solution of penicillin, the latter containing 5,000 units per cubic centimeter.

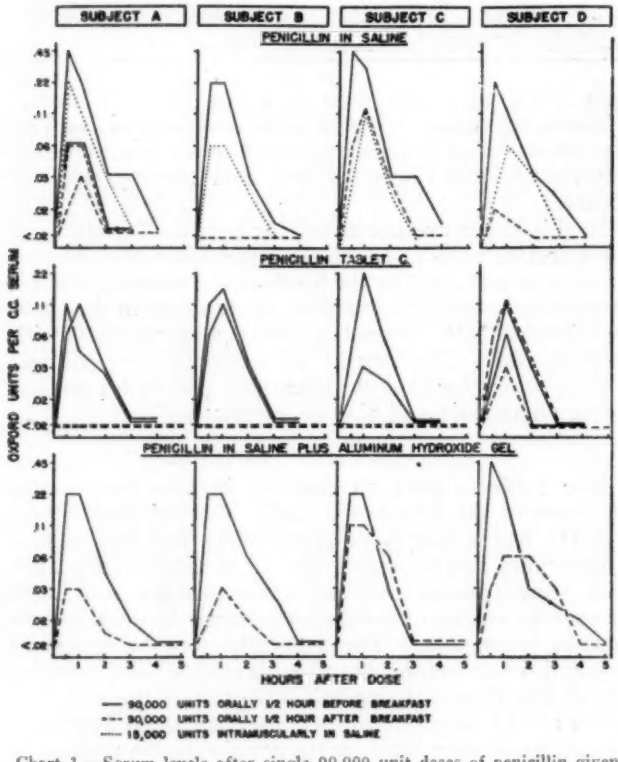
SUBJECT A
SUBJECT B
SUBJECT C
SUBJECT D
PENICILLIN IN SALINE
PENICILLIN TABLET C
PENICILLIN IN SALINE PLUS ALUMINUM HYDROXIDE GEL
OXFORD UNITS PER C.C. SERUM
HOURS AFTER DOSE
90,000 UNITS ORALLY 1/2 HOUR BEFORE BREAKFAST
90,000 UNITS ORALLY 1/2 HOUR AFTER BREAKFAST
15,000 UNITS INTRAMUSCULARLY IN SALINE

Chart 1.—Serum levels after single 90,000 unit doses of penicillin given orally before and after breakfast in 4 normal subjects. Comparison with 15,000 units given intramuscularly.

The pneumonia patients treated were routine admissions to the medical wards. The patients were selected because they were acutely ill, had the typical clinical picture of lobar pneumonia and had previously received neither penicillin nor sulfonamide drugs, and typable pneumococci were found in characteristic sputum. The cases of acute gonorrhea were ambulatory and were treated in the outpatient clinic. They all had the typical clinical picture, and positive smears and cultures were obtained from the exudate before treatment. Most of the strains of gonococci were sulfonamide resistant. Whenever possible, the smears and cultures were repeated after the course of treatment was completed, that is, before the patient left the clinic, and again on the following day and at weekly intervals for three weeks before they were discharged as cured. Unfortunately, some of the patients did not have the complete follow-up. Prostatic secretions were obtained by massage from the male patients in whom there was no further urethral exudate.[9] Patients who had positive smears on the day after treatment or within three weeks were considered as failures and were retreated with intramuscular preparations. Those with incomplete follow-up who had negative cultures and were clinically well for one week were considered as probable cures, since they cannot be considered as definitely cured.[10] Patients who had apparent clinical and bacteriologic cures for at least one week and later returned with symptoms and discharge beginning more than four days after an exposure to a known source of infection were classified as reinfections. Bloods were taken for levels at irregular intervals during the course of treatment in most of the patients.

SERUM LEVELS AFTER SINGLE DOSES

Normal Subjects.—The results obtained in 4 subjects with single oral doses of 90,000 units of three different preparations of penicillin given both before and after breakfast are shown in chart 1. The levels obtained after a single intramuscular injection of 15,000 units of sodium penicillin in saline solution are also shown for comparison. All of the observations with tablet C and those with penicillin in saline solution given orally to subject A were done twice. From this chart it is seen that:

1. The doses given orally before breakfast all produced serum levels which were usually better than those obtained from 15,000 units intramuscularly. Many of the levels compared with those obtained after an intramuscular dose of 25,000 units.[11] These serum levels, moreover, were fairly comparable in different subjects, the variations being no greater than those found after intramuscular doses in different subjects or after repeated doses in the same subject.[11]

2. Ordinary commercial penicillin given orally in saline solution one-half hour before breakfast produced serum levels which were as high as and were maintained as well as or better than similar amounts given under similar conditions but in a specially prepared tablet which allegedly contained "buffers" and "stabilizing agents," or when the saline solution of penicillin was given together with aluminum hydroxide gel.

3. The same doses given to the same subjects one-half hour after a similar meal resulted in levels which varied considerably from the different preparations and in the different subjects. (*a*) Penicillin could be detected in the serum in only 1 of the 4 subjects after tablet C, and

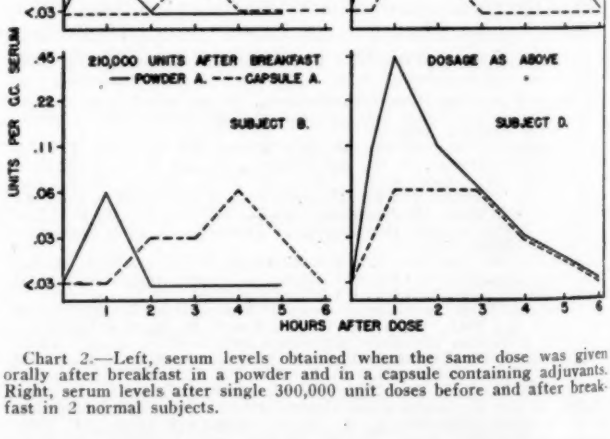

Chart 2.—Left, serum levels obtained when the same dose was given orally after breakfast in a powder and in a capsule containing adjuvants. Right, serum levels after single 300,000 unit doses before and after breakfast in 2 normal subjects.

the same results were obtained on two separate occasions in each subject. (*b*) The greatest variations were noted with the saline solution given after a meal: Subject B had no demonstrable penicillin in the serum, subjects A and D had low levels on one or two occasions and

9. Mrs. Helen Trousdale made the bacteriologic determinations and rendered other valuable assistance in this part of the study. The patients were treated through the courtesy of Dr. Herbert H. Howard.

10. Lapenta, R. G.; Weckstein, A. M., and Sarnoff, H.: The Inadequacy of a Standardized Dosage of Penicillin in the Treatment of Gonococcic Urethritis, J. A. M. A. **128**: 168 (May 19) 1945.

11. Ory, E. M.; Meads, M.; Brown, B.; Wilcox, C., and Finland, M.: Penicillin Levels in Serum and in Some Body Fluids During Systemic and Local Therapy, J. Lab. & Clin. Med., to be published.

subject C had levels comparable with those obtained after the 15,000 unit intramuscular dose. (*c*) The saline solution of penicillin mixed with aluminum hydroxide gel and given after a meal gave rise to low serum levels for one or two hours in subjects A and B and moderate levels which were more sustained in subjects C and D.

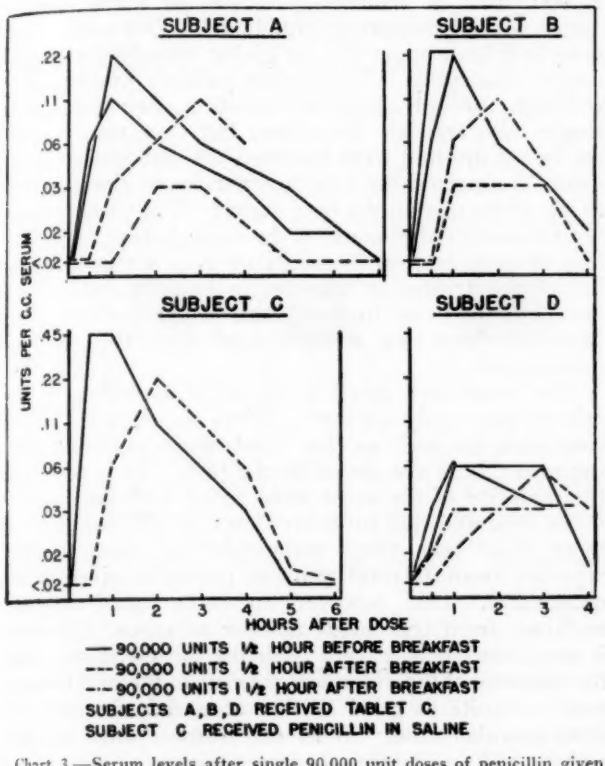

Chart 3.—Serum levels after single 90,000 unit doses of penicillin given orally before and after breakfast in 4 patients with pernicious anemia.

4. The variations observed with the doses that were taken after a meal were not consistent in the different individuals. Thus subject D, who was the only one having good levels from tablet C, showed the poorest serum levels after the saline solution and the most sustained level when the same solution was given mixed with the aluminum hydroxide gel. (This subject is known to have gastric hyperacidity and hypermotility.) Subjects A and C obtained comparable serum levels after the penicillin in saline solution with or without the added gel while failing to get demonstrable levels from tablet C.

The serum levels obtained in 2 of the same subjects when 300,000 units was taken in the form of capsule A before and after breakfast are shown in the right side of chart 2. Absorption was more rapid and more complete when the dose was given before the meal. The maximum levels were higher each time in subject D. The levels in every instance were maintained longer than was the case with the 90,000 unit doses, and they were better sustained in subject D than in subject A.

On the left hand side of chart 2 are shown the levels obtained in 2 of the normal subjects with the same dose of penicillin given after a meal, once in the form of crude penicillin powder and again in capsule A, in which this same powder, mixed with shellac, beeswax and oil, was enclosed in a thin gelatin capsule. The maximum levels in the same subject were similar but were attained later with the capsule than with the powder. In subject B the levels were also sustained longer when the penicillin was taken in the capsule containing the adjuvtants.

Achlorhydric Subjects.—The serum levels after 90,000 units given orally before and after a meal in 4 patients with pernicious anemia in remission are shown in chart 3. The penicillin was demonstrable in the achlorhydric subjects for four to six hours, as compared with only two to four hours in the normal subjects. Here again the levels were higher and somewhat better sustained when the dose was given before a meal, and they were quite irregular when it was given after a meal. Furthermore, the maximum levels were generally higher in these subjects than in the normal ones when the same materials were given under the same conditions. The penicillin appeared in the serum later when the dose was given after breakfast than it did in the same subject when the same dose was given before a meal. The highest levels were obtained when the dose was given in saline solution either before or after a meal.

SERUM LEVELS DURING REPEATED ORAL ADMINISTRATION

Normal Subjects.—Prior to embarking on a therapeutic trial with oral preparations it seemed desirable to determine whether serum levels could be maintained with large doses given orally at frequent intervals. A large priming dose was given in the morning immediately before breakfast, and the sustaining dose was given one hour later and repeated at two hour intervals for four more doses. Dinner was taken just before the fourth dose. This sort of schedule seemed applicable in the outpatient clinic for use in the treatment of acute gonorrhea. The serum levels in 4 control subjects given two different amounts of penicillin in capsule A on this time schedule are shown in chart 4.

There were considerable variations in the results obtained in the 4 subjects. In subjects D and E the penicillin was detectable and reached significant levels after an hour. In subject B none was detected until the third hour, and in subject A it was first demonstrated only after five hours. In all 4, however, there

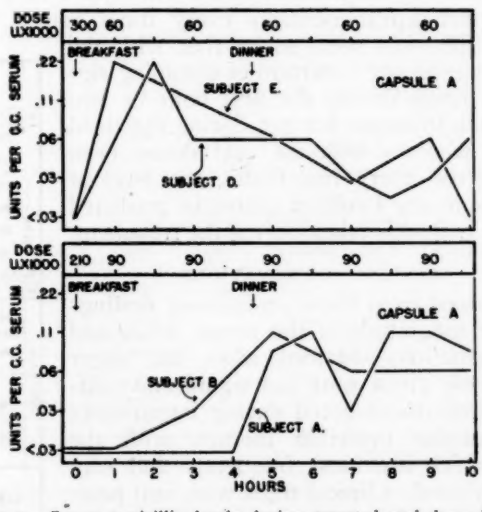

Chart 4.—Serum penicillin levels during repeated oral doses in normal subjects.

were significant, though variable, amounts in the serum for at least six of the ten hours during which observations were made. The levels did not show any constant fluctuations in relation to the meals. It seemed from these preliminary observations that the larger initial dose and the larger follow-up doses were more desirable.

Patients Under Therapy.—The serum levels obtained at different times during the course of the oral administration of some of the preparations in the treatment

of patients in the clinic and in the wards, using somewhat similar dosage schedules, are shown in chart 5. On the whole, satisfactory levels were obtained in most instances, but they were quite irregular. Some of the failures to detect penicillin in the serum during the first hour may have been due to the fact that the patient had

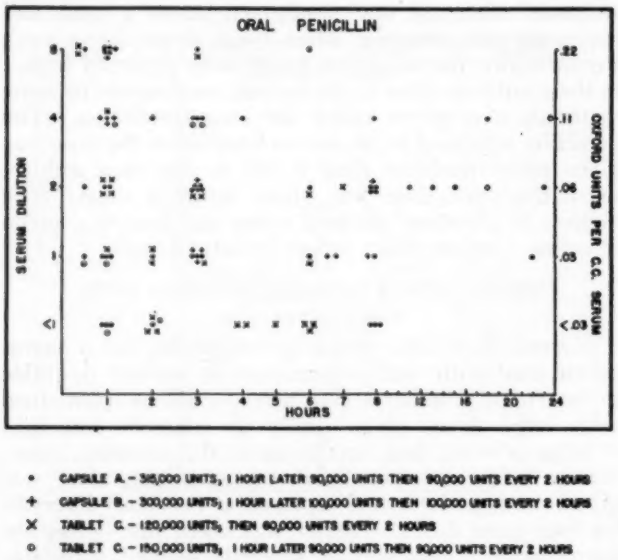
ORAL PENICILLIN
SERUM DILUTION
OXFORD UNITS PER C.C. SERUM
HOURS
CAPSULE A. – 360,000 UNITS, 1 HOUR LATER 90,000 UNITS THEN 90,000 UNITS EVERY 2 HOURS
CAPSULE B. – 300,000 UNITS, 1 HOUR LATER 100,000 UNITS THEN 100,000 UNITS EVERY 2 HOURS
TABLET C. – 120,000 UNITS, THEN 60,000 UNITS EVERY 2 HOURS
TABLET C. – 150,000 UNITS, 1 HOUR LATER 90,000 UNITS THEN 90,000 UNITS EVERY 2 HOURS

Chart 5.—Serum levels obtained during oral penicillin therapy with various preparations and dosage schedules.

taken a meal shortly before the initial dose. Most of the serums in which penicillin could not be detected (that is, they contained less than 0.03 unit per cubic centimeter) after the first hour were from patients who received the smallest amounts of tablet C, namely 120,000 units followed by 60,000 units every two hours. The levels on the other dosage schedules are comparable, on the whole, with those obtained with a dose of 20,000 units given intramuscularly every three hours. The chief differences seem to be that with the latter method one is certain of obtaining significant levels during the first hour or two after each injection but not during the third hour,[11] whereas with the oral doses, even when given every two hours, the level at any time in any 1 subject cannot be predicted so long as food is taken during the treatment.

CLINICAL OBSERVATIONS

It seemed from these preliminary findings that the magnitude of the serum levels and the fluctuations obtained when the larger doses were given were not significantly different from those noted during intermittent intramuscular penicillin therapy with the doses which are most frequently and successfully used. Clinical trials with oral penicillin preparation in large doses, therefore, seemed justified. It was obvious, however, that only a rough estimate of the effectiveness of such therapy could be gained unless large numbers of cases could be studied with adequate clinical and bacteriologic control. Even greater numbers would, of course, be required for any reasonable comparison of different preparations or dosage schedules. This has already become clear from attempts to establish in cases of gonorrhea the curative dose of ordinary commercial penicillin given by intramuscular injection.[10] The present observations were therefore intended only as a test of the feasibility and general effectiveness of some of the preparations that were available.

Acute Gonorrhea.—A total of 61 patients were treated with various preparations and dosage schedules. Included are 5 patients who were given four doses of 25,000 units of ordinary penicillin in saline solution mixed with aluminum hydroxide gel. This method and dose had been suggested as giving complete and prolonged absorption. Two other patients are included, although, through a misunderstanding, they took only a single dose and left the clinic; but they returned for the follow-ups and were observed without further treatment. In general the total amounts were given in four to six doses, one or two hours apart. The patients were not all instructed to come to the clinic fasting, but about half of them had no breakfast or only a cup of coffee before the treatment was begun and the others had breakfast from one to two hours before the first dose. Most of them took a light meal after the third or fourth dose.

The results are listed in the table according to the criteria previously set forth. Since the duration of the treatment as well as the total dose may influence the result, both are shown in the table. It is seen that the majority of the cases were cured with each of the doses used and that probably doses of 450,000 units or more gave cure rates comparable to those usually reported from 100,000 units of penicillin given intramuscularly. That, however, cannot be stated with any certainty from this small number of cases. Clinically it was noted that, except with the largest doses used, the response of the individual patients to the oral therapy was not quite as good as that observed after the full intramuscular dose. With the former, some dysuria and mucoid or slightly purulent discharge continued for twelve to twenty-four hours longer in spite of the fact that organisms could not be seen on smear or obtained from cultures of the exudate after the last dose was

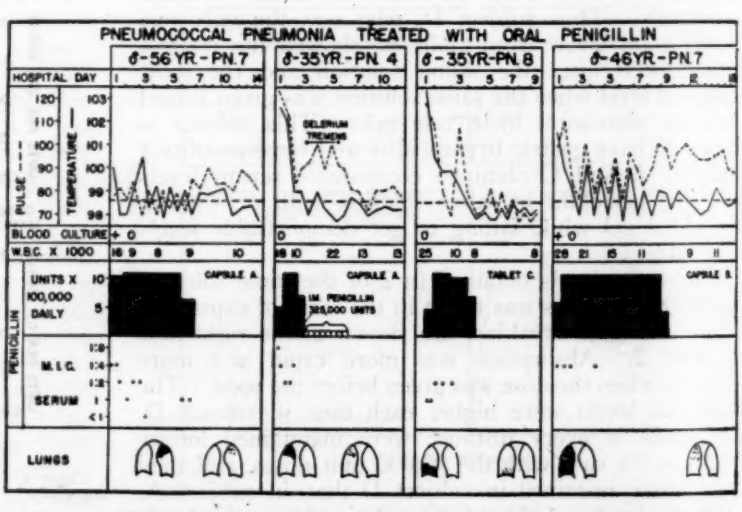

Chart 6.—Clinical course and certain relevant features in 4 cases of pneumococcic pneumonia treated with oral penicillin. The minimum inhibiting concentration of penicillin (M. I. C.) is shown in terms of dilution of serum (0.2 cc. amounts). In terms of Oxford units, 1 is equivalent to 0.03 unit, 1: 2 = 0.06 unit, and so on.

taken. The cases which are listed as failures or probable recurrences all subsequently responded with complete clinical and bacteriologic cure after the usual doses of 100,000 units given in four intramuscular injections. Some of the serum levels obtained during treatment in these cases are shown in chart 5.

Pneumococcic Pneumonia.—The clinical course and some of the relevant findings in 7 patients with typical lobar pneumonia who were treated with oral penicillin are shown in charts 6 and 7. The disease was only of moderate severity in all, but 2 of them had positive blood cultures before treatment. Treatment was begun

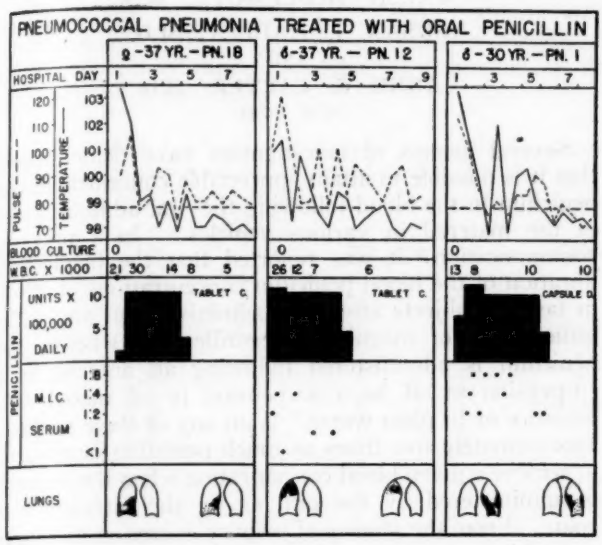

Chart 7.—Clinical course and certain relevant features in 3 cases of pneumococcic pneumonia treated with oral penicillin. The minimum inhibiting concentration and Oxford units are as in chart 6.

between the first and fourth days in 6 cases and on the seventh day in the remaining case. The initial dose was 300,000 units in 5 and 150,000 units in the other 2. The follow-up doses of 90,000 or 100,000 each were given every two hours thereafter and continued until the temperature had remained normal for about forty-eight hours. One patient developed delirium tremens after the temperature, pulse and leukocyte count had reached normal and he was clinically improved. A few intramuscular injections of penicillin were then given on that account. The total oral dose varied between 2.5 and 8.5 million units. The largest dose was used in a patient who had low grade fever for six days associated with an interlobar pleural effusion.

As seen from charts 6 and 7, the results are comparable with those obtained with effective sulfonamides given in full doses or with the usual doses of 15,000 units of penicillin given every two or three hours.[12] The patients were all clinically improved within twelve hours and were essentially afebrile in from twelve to thirty-six hours except in the case that was complicated by the pleural effusion. In the 2 cases in which blood cultures were positive before treatment, subsequent ones taken twelve hours later were negative. Studies of the sputum in these cases showed that pneumococci could not be recovered on the second day of treatment or later. In these respects too the results were comparable to those obtained with intramuscular penicillin therapy. The serum taken at various intervals usually showed complete inhibition of the test strain of hemolytic streptococcus either when used in 0.2 cc. amounts undiluted or up to a 1:8 dilution. These levels are equivalent to concentrations ranging from 0.03 to 0.22 unit per cubic centimeter of serum. Only rarely did the concentration fall below the lowest detectable level of 0.03 unit per cubic centimeter of serum.

12. Meads, M.; Harris, H. W., and Finland, M.: Treatment of Pneumococcal Pneumonia with Penicillin, New England J. Med. **232**: 747 (June 28) 1945.

UNTOWARD EFFECTS

Some of the control subjects and patients who received capsule A experienced slight abdominal discomfort accompanied by increased peristalsis, and they usually passed one or two loose and bulky stools, but none had any definite diarrhea. This may be attributable to the shellac. Both the crude and the ordinary commercial penicillin have a rather persistent and unpleasant taste which somewhat resembles that of licorice powder. There was also a mild odor of amyl-acetate to some of the preparations. No other untoward effects were experienced from any of the preparations.[12a]

COMMENT

Two points stand out from the results of the serum levels obtained after single oral doses of penicillin. The first is the paramount importance of the time when a dose is given in relation to a meal. When the penicillin was taken one-half hour before breakfast, effective absorption was good and regular and this can probably be assumed for longer periods before the meal. When taken after the meal, the serum levels were irregular and unpredictable. Persons with achlorhydria had good serum levels for longer periods than normal persons when penicillin was given before a meal. When the penicillin was taken after the meal, absorption in the achlorhydric subjects was delayed and the serum levels were lower than when taken before a meal but were regularly higher and better sustained than in normal subjects. The importance of the size and of the various constituents of the meal as well as the duration of their effects has not been determined. These factors require further study, which should bring to light information that may be of practical importance in improving the results of oral therapy.

The second point which was quite striking was the fact that ordinary commercial penicillin powder when given in saline solution before a meal gives levels which are at least as high and as well sustained as the various preparations tested which contained buffers and stabilizers in tablets or capsules. This was generally true both before and after a meal with the possible exception

Acute Gonorrheal Urethritis Treated with Oral Penicillin

Preparation	Total Dose, Units	Hours First to Last Dose	Number of Patients	Cures and Probable Cures	Failures	Probable Reinfections.
With aluminum hydroxide gel.	100,000	6	5	3	2	0
Tablet C.....	120,000	..	1	1*	0	0
Capsule D.....	150,000	..	1	1*	0	0
Tablet C.....	300,000	6	8	4	3	1
Tablet C.....	450,000	5	6	6	0	0
Tablet C.....	510,000	7	6	6	0	0
Tablet C.....	610,000	5	2	2	0	0
Capsule D.....	600,000	7	17	14	1	2
Capsule A.....	750,000	8	11	9	1	1
Capsule B.....	800,000	8	4	4	0	0
			61	50	7	4

* These patients left after an initial dose and received no other therapy but returned for a check-up later.

of the aluminum hydroxide gel, which may have slightly increased and prolonged the absorption of the saline solution of penicillin when given after a meal.

The significance of the levels obtained from the single doses and during the course of treatment in the present study can best be appreciated by comparison with the

12a. In a recent case of pneumococcic pneumonia with bacteremia that was treated with oral penicillin alone a maculopapular rash developed on the fifth day and nitrogen retention (nonprotein nitrogen 165). These cleared within thirty-six hours after penicillin was discontinued.

in vitro penicillin sensitivity of various common pathogenic strains and with the levels obtained during routine treatment with the usual intermittent intramuscular doses. Data obtained in this clinic by the same or comparable methods are summarized elsewhere.[13] A concentration of 0.03 unit per cubic centimeter was found to be sufficient in vitro to sterilize cultures of all strains of gonococcus and group A hemolytic streptococcus, the great majority of strains of pneumococcus and Streptococcus viridans, but only one half or less of the strains of meningococcus and Staphylococcus aureus. Most of the remaining strains of the two latter organisms and occasional streptococci from cases of subacute bacterial endocarditis required from two to eight times this concentration. Several of the staphylococci required even greater amounts. Thus, the levels obtained with the oral preparations in the doses used may be expected to prove effective in gonococcic, hemolytic, streptococcic and pneumococcic infections, but they may fail in many cases of staphylococcic or meningococcic infection and in some cases of subacute bacterial endocarditis.

The results in the clinical cases are obviously of a most preliminary nature. They do indicate, however, that treatment with penicillin given at brief intervals and in large doses is feasible and effective at least in cases which respond to low or moderate doses of parenteral penicillin. Obviously, clinical judgment dictates that the parenteral route is the preferable one for initiating treatment in all severe infections and for maintaining therapy in those infections in which large doses given over a long period have already proved essential for the best results.

SUMMARY AND CONCLUSIONS

A dose of 90,000 units of penicillin given by mouth one-half hour before breakfast regularly gave serum levels comparable with those obtained from 15,000 or 20,000 units given intramuscularly. The levels obtained in the serum when the same amount of penicillin was given one-half hour after breakfast were very irregular and unpredictable.

As compared with normal persons, achlorhydric individuals had more sustained serum levels from oral penicillin taken before a meal and higher as well as better sustained levels from the postprandial dose.

The serum levels obtained with ordinary penicillin in saline solution were at least as high and as well sustained as with any of the special oral preparations tested. This was true both before and after meals except possibly when aluminum hydroxide gel was used in addition to the saline solution of penicillin after a meal.

Effective penicillin levels could be fairly well maintained with several oral preparations given in 90,000 or 100,000 unit doses every two hours.

The results of preliminary clinical trials in gonorrhea and in pneumococcic pneumonia suggest that oral penicillin therapy is feasible in these infections. They suggest further that oral therapy should prove effective in other infections in which low doses of parenteral penicillin have proved adequate. Parenteral penicillin should be used to initiate therapy in all severe infections and in those which experience has already shown to require prolonged treatment with large parenteral doses.

13. Meads, M.; Ory, E. M.; Wilcox, C., and Finland, M.: Penicillin Sensitivity of Strains of Six Common Pathogens and of Hemophilus Hemolyticus, J. Lab. & Clin. Med., to be published. Ory, Meads, Brown, Wilcox and Finland.[11]

THE TREATMENT OF PNEUMOCOCCIC PNEUMONIA WITH ORALLY ADMINISTERED PENICILLIN

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Several groups of investigators have demonstrated that it is possible to attain appreciable concentrations of penicillin in the blood following the oral administration of the material in various vehicles.[1] In a previous communication [2] it was reported that the height and duration of the blood penicillin concentrations observed in fasting subjects after oral administration are of the same order of magnitude regardless of whether the penicillin is administered following an antacid, as a suspension in oil, as a suspension in oil mixed with beeswax or in plain water. With any of these methods approximately five times as much penicillin is required to achieve a given blood concentration when the material is administered by the oral as by the intramuscular route. From the studies of urinary excretion there was no evidence that any of the vehicles promoted the absorption of more penicillin than occurred following the ingestion of the material in water. This original investigation has been extended to include a number of additional vehicles [3] and methods for the oral administration of penicillin. These results will be reported elsewhere,[4] but it can be said at this point that in no instance was it possible to demonstrate that any method was superior to the oral administration of powdered penicillin in a capsule or dissolved in water.

The present report is concerned with the therapeutic results attained followiing the oral administration of penicillin to a series of 45 patients with pneumococcic pneumonia. The patients were treated in the medical service of the New York Hospital and in the Second Medical (Cornell) Division of Bellevue Hospital. All patients in whom the diagnosis of pneumococcic pneumonia was established who were admitted to the two services during the period of study (December 1944 to May 1945) are included in the series (table 1).

VEHICLES AND METHODS OF ADMINISTRATION

Both the calcium and the sodium salts of penicillin were used. The former was given as a suspension in corn or cottonseed oil enclosed for convenience in a quick dissolving gelatin capsule.[5] In a few instances the oil suspension of calcium penicillin was mixed with

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The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Cornell University Medical College.

1. Libby, R. L.: Oral Administration of Penicillin in Oil, Science **101**: 178, 1945. Little, C. J. H., and Lumb, G.: Penicillin by Mouth, Lancet **1**: 203, 1945. György, Vandegrift, Elias, Colio, Barry and Pilcher.[6] McDermott, Bunn, Benoit, DuBois and Haynes.[2]

2. McDermott, W.; Bunn, P. A.; Benoit, M.; DuBois, R., and Haynes, W.: Oral Penicillin, Science **101**: 228, 1945.

3. The methods or vehicles for the oral administration of penicillin include (1) oil suspension mixed with beeswax, (2) oil suspension mixed with shellac, (3) tricitrate tablets, (4) lecithin, (5) mucin, (6) adsorption on amphogel and (7) stearates.

4. McDermott, W.; Bunn, P. A.; Benoit, M.; DuBois, R., and Haynes, W.: The Absorption, Destruction, and Excretion of Orally Administered Penicillin, to be published.

5. The penicillin in oil suspension and the penicillin X were supplied through the courtesy of Dr. Benjamin W. Carey, medical director of Lederle Laboratories, Inc., Pearl River, N. Y.

5 per cent beeswax before it was capsuled. In about one half of the series (22 patients) the only preparation used was the sodium salt of penicillin in the customary powdered state enclosed in a gelatin capsule or dissolved in 20 or 30 cc. of iced tap water (table 1). Although the aqueous solution of penicillin is somewhat bitter to the taste, its administration caused little or no inconvenience to the patients. Three patients were treated solely with the aqueous solution of a preparation which contained approximately 90 per cent of the X fraction of penicillin.[5]

appearance of a crisis, the administration throughout the night was discontinued. From this point on the 50,000 unit doses were given from 8 a. m. to 10 p. m. inclusive.

With eight exceptions the duration of treatment varied from four to seven days.

No particular effort was made to arrange the timing of meals in relation to the administration of the penicillin despite the fact that the effectiveness of orally administered penicillin is appreciably diminished by the ingestion of food.[6]

TABLE 1.—*Forty-Five Patients with Pneumococcic Pneumonia Treated with Oral Administration of Penicillin*

No.	Name	Day of Illness Treatment Began	Sex	Age	Type	Maximum White Blood Cells	Location	Vehicle	Total Dose, Millions of Units	Total Days of Treatment
1	E. S.	1	♀	66	8	21,000	RUL	Oil	1.9	4
2	H. M.	3	♂	58	3	32,000	RML	Oil	2.0	3
3	S. W.	1	♂	18	1	44,000	RML	Oil	2.16	4
4	C. B.	4	♂	40	1 and 5	26,000	RLL	Oil	2.16	4
5	P. G.	2	♂	15	2	23,000	LLL	Oil	2.34	4
6	H. W.	1	♂	37	2	18,000	LLL	Oil	2.504	4
7	R. H.	1	♂	37	6	14,600	LLL	Oil	2.57	4.5
8	H. K.	2	♂	89	3	15,900	LLL	Oil	2.6	4
9	M. H.	5	♀	56	Unclassified	38,000	LLL	Oil	2.7	4
10	M. E.	1	♀	38	1	20,000	LLL	Oil	2.0	4
11	A. D.	2	♀	49	2	22,500	RML and LLL	Oil	3.24	4
12	J. C.	1	♂	16	7	25,000	RML	Oil	3.264	4
13	J. R.	4	♂	30	1	19,800	RLL	Oil	3.78	4
14	K. G.	3	♀	44	19	12,900	LLL and RLL	Oil	4.3	4
15	J. G.	4	♀	57	8	17,400	LLL	Oil	5.26	5
								I.M.	0.480	4|9
16	A. S.	1	♂	54	19	14,000	RUL	Oil	7.0	7
17*	E. B.	?	♂	50	2	13,000	RUL	Water	0.300	6 hrs.
18†	F. R.	4	♂	21	5	19,000	RML and RLL	Water	0.850	1
								I.M.	2.885	10|11
19	J. C.	3	♂	35	12	25,000	RLL	Capsule ‡	1.45	3
20	R. D.	1	♂	23	4	16,200	RLL	Capsule	1.8	4
21	W. N.	2	♂	58	1	25,000	RLL	Capsule	2.1	4
22	F. H.	1	♂	43	12	24,000	LLL	Capsule	2.2	4
23	J. G.	2	♂	56	2	15,600	RML	Capsule	2.2	4
24	H. G.	3	♀	40	Unclassified	15,200	LLL	Capsule	2.2	4
25	P. M.	8	♂	48	5	20,000	LLL	Capsule	2.3	4
26	E. B.	3	♀	76	Unclassified	18,500	LUL	Water	3.0	4
27	B. S.	2	♂	52	5	11,600	RLL	Water	2.95	5.5
28	M. S.	5	♀	44	3	21,400	LLL	Water	3.05	6
29	D. G.	7	♂	46	Unclassified	28,000	LLL	Water	3.75	7
30	F. F.	3	♂	70	3	13,000	RML	Capsule	4.0	11
31	H. R.	1	♂	56	6	16,100	RML	Water	4.0	5
32	J. A.	14 ?	♂	57	8	22,200	RLL	Capsule	4.9	9
33	M. H.	1	♀	67	3	20,500	RLL and LLL	Water	5.0	9
34	D. C.	1	♂	47	1 and 6	11,000	LLL	Water	6.7	6
								I.M.	2.31	9|15
35	B. B.	2	♀	65	21	20,300	LLL and RLL	Water		
36	M. C.	3	♀	21	1	22,400	RLL	Water (X)	2.45	4.5
37	J. R.	2	♂	49	Unclassified	13,100	RUL	Water (X)	3.2	4
38	T. M.	3	♂	45	Unclassified	21,900	RUL	Water (X)	4.9	8
39	J. O.	2	♂	41	Unclassified	14,100	RML	Oil, capsule	2.6	4
40	A. Mc.	7	♀	54	14	12,400	RML	Oil, capsule	2.05	4.5
41	C. G.	2	♂	46	4	13,500	LLL	Oil, capsule	2.6	4
42	T. S.	4	♂	70	2	8,400	RLL	Oil, capsule	3.7	5
43	W. W.	2	♂	60	25	15,000	LLL	Water, beeswax	2.80	4
44	W. O'H.	1	♂	28	Unclassified	8,000	RML and RLL	Water, beeswax	3.8	5
45	F. R.	4	♂	48	18	20,000	RML and RLL	Oil, beeswax	7.0	8

Age Groups	Patients
15 - 19	3
20 - 39	9
40 - 59	25
59	8
Total	45

	Patients
Oil	16
Penicillin powder	22
Beeswax	3
Combination	4
Total	45

* Death. † Complication. ‡ Capsule (penicillin powder in a plain gelatin capsule).

DOSAGE REGIMENS

The dosage regimen was gradually modified throughout the period of the study. Because the effectiveness of the treatment was not established, the first patients treated received relatively huge amounts (1 to 2 million units) of penicillin during the first twenty-four hours of therapy. As experience was gained, it was possible to reduce the dosage, and the patients in the latter half of the series were all treated on a relatively constant regimen. This consisted in the initial administration of 200,000 units of penicillin followed by 50,000 unit doses at two hour intervals throughout the twenty-four hour period. Twenty-four to thirty-six hours after the

REACTIONS TO THE INGESTED PENICILLIN

No instances of nausea, vomiting, diarrhea or other gastrointestinal disturbances occurred following the oral administration of penicillin by these regimens. One patient developed mild generalized urticaria, which subsided promptly after the commercial brand of penicillin was changed.

PATIENTS

All of the patients presented the characteristic picture of pneumococcic pneumonia as determined by clini-

6. György, P.; Vandegrift, H. N.; Elias, W.; Colio, L. G.; Barry, F. M., and Pilcher, J. D.: Administration of Penicillin by Mouth: Preliminary Report, J. A. M. A. **127**: 639 (March 17) 1945. McDermott, Bunn, Benoit, DuBois and Haynes.[4]

cal, bacteriologic and roentgenographic examinations. Although the pneumococcic infections observed by us during the study (1944-1945) were not so uniformly severe as in some previous seasons, all of the patients were acutely ill and 6 were in a critical state at the time of admission to the hospital. In almost one third of the group (13 patients) an initial bacteremia was present (table 2). Six patients were chronic alcoholic addicts who were intoxicated at the onset of infection. Of 3 patients with organic heart disease, 2 presented the characteristic peripheral evidence of congestive heart failure, and an additional patient was in severe diabetic ketosis when therapy was started.

AGE

The ages of the patients ranged from 15 to 89 years (table 1).

DURATION OF DISEASE AT START OF TREATMENT

As may be seen in table 1, treatment was started in the majority of instances within forty-eight hours of the onset of the pneumonia, as judged by the history of initial chill or first pleuritic pain. In a few patients temperature to below 38 C. (100.2 F.) with accompanying signs of amelioration of the infection in the absence of peripheral circulatory failure. As may be seen in table 2, such a crisis developed within twenty hours in 11 patients, within thirty hours in an additional 19 patients and within forty-eight hours in 6 more patients. In 8 patients defervescence was not abrupt but developed gradually over a period of ninety-six hours.

No difference in therapeutic response could be demonstrated between the group of patients who received penicillin suspended in oil and those who received penicillin alone.

In chart 1 may be seen a representative example of the onset of crisis within twenty hours of the start of therapy with powdered sodium penicillin in capsules. This white man (W. N.), aged 58, was admitted to the hospital with a history of severe shaking chills, fever, pleuritic pain, nausea and diarrhea of twelve hours' duration. On examination he was found to be acutely ill, cyanotic and still shaking from a recent chill. Signs of consolidation over the area of the right lower lobe were demonstrable by physical and roentgenographic

TABLE 2.—*Distribution of Pneumococcus Types and Response to Therapy*

Type	Number of Cases	Blood Cultures		Temperature Fall: By Crisis			By Lysis: Not More Than 96 Hrs.	Secondary Rise of Temperature		Complete but Delayed Resolution	Pleural Effusion Not Treated
		Negative	Positive	12-20 Hrs.	20-30 Hrs.	Less Than 48 Hrs.		2-4 Days	7-10 Days		
I	7	4	3	2	4	..	1	2	..	1	2
II	6	3	3	3	1	1	..	2	1	1	2
III	5	4	1	1	3	1	..	3	1	3	1
IV	2	1	1	1	1	..	..	..	..	..	..
V	3	2	1	1	1	1	..	1	..	1	1
VI	2	2	0	1	..	..	1	..	..	..	..
VII	1	1	0	..	1	..	..	..	..	..	..
VIII	3	2	1	..	2	..	1	2	..	1	1
XII	2	2	0	..	1	..	1	..	..	..	..
XIV	1	1	0	1	..	..	..	1	1	..	..
XVIII	1	0	1	..	..	1	..	..	1	..	..
XIX	2	2	0	..	1	..	1	1	..	..	..
XXI	1	1	0	..	..	..	1	..	..	..	..
XXV	1	0	1	..	1	..	..	..	..	..	..
Unclassified	8	7	1	1	3	2	2	1	1	1	1
Total	45	32	13	11	19	6	8	13	5	8	8

the infection had undoubtedly been present for a longer period and in 1 instance therapy was not inaugurated until the fourteenth day of illness.

PNEUMOCOCCUS TYPES

In table 2 may be seen the distribution of the types of infecting pneumococci. The causative organisms in 18 patients (40 per cent) were in serologic types I, II and III. In 2 patients more than one type of pneumococcus was identified in the sputum, but in each patient a type I pneumococcus was the only organism demonstrable by culturing the blood and was considered to be the infecting pneumococcus. It was impossible to classify the organisms in 8 of the patients. In 6 of these an abundance of organisms with the characteristic morphology of pneumococci was present on direct examination of the sputum. Unfortunately, sputum for pneumococcus typing was not obtained from the remaining 2 patients. However, as the pneumonia of these patients both clinically and by roentgenogram was so similar to the picture of pneumococcic pneumonia observed in the others, these 2 cases have been included in the unclassified pneumococcus group.

RESULTS

In the majority of the patients a crisis ensued soon after the inauguration of oral penicillin therapy. The term "crisis" is used to designate an abrupt fall in

examination. Characteristic rusty sputum contained type I pneumococci. There was a leukocytosis of 25,000 cells with a decided increase in the numbers of immature forms, and the blood culture was sterile. Eighteen hours after the institution of therapy with penicillin powder there was an abrupt crisis. This remission of all signs of the infection was maintained, and at the end of seven days a roentgenographic examination disclosed almost complete disappearance of the pneumonia. The subsequent course was uneventful, with eventual complete recovery.

MORTALITY AND COMPLICATIONS

There was one death. The patient was a man aged 50, an alcoholic addict with hepatic cirrhosis who had been found in bed at home by neighbors with an acute illness of unknown duration. On admission to the Bellevue service he was critically ill with a pneumococcus type II pneumonia of the right upper lobe, fever of 40.2 C. (104.4 F.) and a bacteremia. He developed peripheral circulatory collapse with pulmonary edema and died six hours after admission. He had received 200,000 units of penicillin in water on admission and an additional 100,000 units subsequently. Postmortem cultures of the blood were not obtained, so that it is not known whether the treatment had had any effect on the bacteremia. Whether the administration of penicillin by another route would have proved more effective in

this case cannot be determined. However, the small number of fatalities from pneumococcic pneumonia which occur despite the intramuscular administration of penicillin usually develop in this type of case in which the development of shock results in death before there is sufficient time for the antibacterial agent to exert an effect.

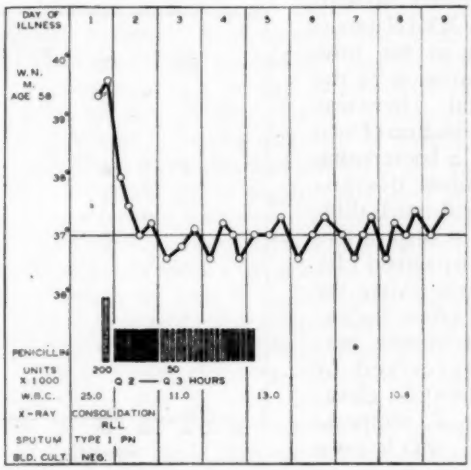

Chart 1.—Onset of crisis eighteen hours after start of oral therapy with powdered penicillin (pneumococcus type I).

One patient developed empyema (chart 2). He was a student aged 21 who entered the hospital on the fourth day of illness. Examination revealed that he was acutely ill, with lobar consolidation of the right middle and lower lobes, cyanosis, dyspnea and fever of 40 C. (104 F.). A type V pneumococcus was found in his sputum, but there was no bacteremia. During the first twenty-four hours of treatment he received 850,000 units of penicillin in oil suspension. At the end of that period his temperature had fallen little and there had been only slight improvement in the clinical picture. As our experience with the treatment of pneumonia with oral administration of penicillin was so limited at the

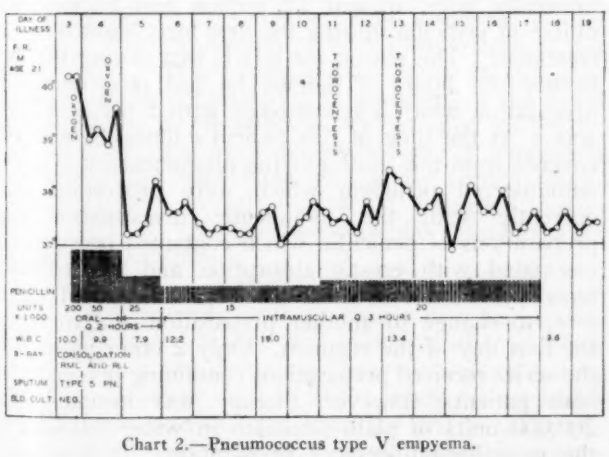

Chart 2.—Pneumococcus type V empyema.

time of this patient's illness, it was decided to change to the intramuscular route. Within six hours of the change the patient's temperature had fallen to normal. Specimens of blood which were obtained during the period of oral administration were subsequently found to contain satisfactory concentrations of penicillin. Because of this finding, and the fact that the crisis occurred within such a short period after the change of route, it is probable that the abandonment of the oral administration was an unnecessary caution. During the four days after the initial defervescence, while he was still receiving penicillin intramuscularly, the patient's temperature gradually rose and he was discovered to have a pneumococcus type V empyema. This was treated by aspiration and direct introduction of penicillin into the empyema cavity. During the next three weeks there was a gradual but slow resolution of the process in lung and pleura with eventual complete recovery.

A change of the route of penicillin administration from oral to parenteral was also made in 2 other patients in the series. In both of these cases, which were virtually identical, a low grade fever had persisted throughout the week after the initial crisis. In neither case was there any dramatic effect on the course of the fever following the change to intramuscular administration. The fever continued for a few days and then subsided gradually. The clinical course of 1 of these patients may be seen in chart 3. Other than these 3 patients, all the members of the series received the penicillin solely by the oral route throughout the entire period of therapy.

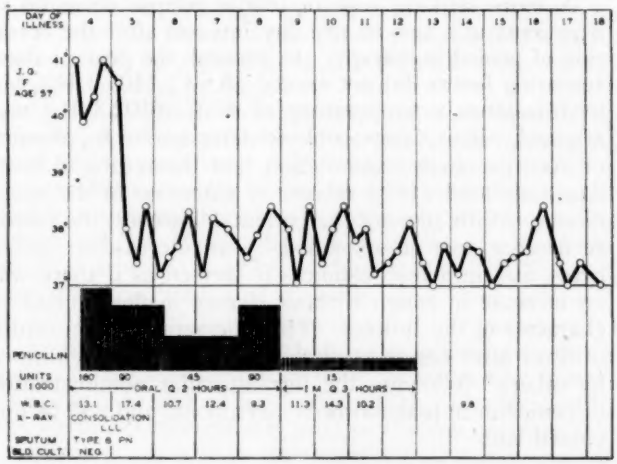

Chart 3.—Persistent low grade fever unaffected by change to intramuscular administration of penicillin (pneumococcus type VIII).

MINOR COMPLICATIONS

Eight patients developed small intrapleural collections of fluid demonstrable by roentgenogram during the course of their illness (table 2). These effusions were presumably sterile, as they resolved completely without aspiration.

"DELAYED RESOLUTION"

In 4 of these patients with effusions and in 4 additional patients resolution of the pneumonia was somewhat delayed. The designation "delayed resolution" is an arbitrary one and is used here to mean any residual, clinical or roentgenographic evidence of the process present later than twenty-one days after the onset of the infection. Four of these patients had not received therapy until after the fourth day of the pneumonia. From a clinical standpoint the course of all 8 of these patients with "delayed resolution" did not differ significantly from the other patients in the group. They were, however, kept under observation in the hospital for a longer period. Eventual complete recovery occurred in 7 patients between the third and the sixth week after onset of the pneumonia. One patient was lost from observation after the fourth week.

OTHER MINOR COMPLICATIONS

On admission to the hospital 1 patient presented an extensive pustular herpetic eruption of the lips and nose, and another had an acute but mild otitis media. In neither case was any special therapy required, and both infections disappeared as the pneumonias resolved.

FEBRILE RELAPSES

Twelve of the 36 patients who developed an abrupt crisis within the first forty-eight hours after the start of penicillin therapy showed a small secondary rise during the second or third day of therapy. This increase in temperature was usually to less than 38.6 C. (101.5 F.) but in 2 patients reached 39 C. (102.3 F.). In no instance was the fever accompanied by evidence of relapse of the infection. In 4 of these 12 patients the fever subsided promptly within thirty-six to forty-eight hours. In the remaining 8 patients the low grade fever persisted for four to seven days, and in 1 instance for fourteen days, before it subsided. An increase of the oral dose of penicillin in 1 patient and a change to the intramuscular route in 2 others did not seem to affect the course of this low grade fever, as mentioned previously (chart 3).

A more striking type of febrile relapse occurred in 5 patients at a two to five day interval after the cessation of penicillin therapy. In general, the peak of these recurring fevers did not exceed 38.5 C. (101.3 F.), but in 1 instance a temperature of 39 C. (102.3 F.) was attained. It was impossible to demonstrate by physical or roentgenologic examination that the return of fever was associated with a relapse or extension of the pneumonia. With some of the patients, however, the febrile recurrence was accompanied by an increase in leukocytes, and in a few instances it seemed as if there was an increase in cough without change in the amount or character of the sputum. This phenomenon of a return of fever after cessation of chemotherapy has been noted by others[7] following the intramuscular administration of penicillin in pneumococcic pneumonia and will be discussed later.

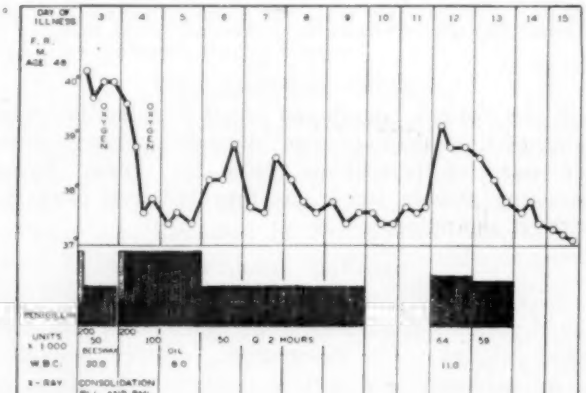

Chart 4.—Secondary fever during therapy, and febrile relapse two days after cessation of therapy (pneumococcus type XVIII).

With the reinstitution of the oral administration of penicillin to 4 of these patients, the temperature and leukocyte count promptly returned to normal with no further relapse after subsequent discontinuance of therapy. The disappearance of the febrile relapse, however, was equally prompt in the other 2 patients who received no penicillin during the period of recurrent fever. In this connection it should be noted that these febrile relapses occurred between the ninth and the seventeenth day of the pneumonia.

In chart 4 may be seen the clinical course of the patient who presented the most severe of these relapses. The patient was an alcoholic addict aged 48 who was desperately ill with a type XVIII pneumonia at the time of admission to the hospital. There was consolidation of two lobes, a bacteremia, abdominal distention and much difficulty in respiration, accompanied by cyanosis. After the initial crisis the patient's course was characterized by continued elevations of temperature, with two distinct rises to 38.8 C. (101.8 F.) on the third and fourth days of therapy. Following this, recovery was apparently progressing satisfactorily until the ninth hospital day (two days after cessation of penicillin therapy), when there was an abrupt return of fever accompanied by mild pleuritic pain, increase in cough and a moderate leukocytosis. All evidence of relapse disappeared promptly with the reinstitution of therapy, which was continued for a period of two days. The subsequent course was uneventful, with eventual complete recovery.

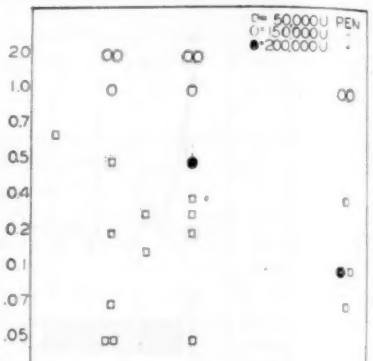

Chart 5.—Random determinations of blood penicillin concentrations per cubic centimeter in pneumococcic pneumonia. Circled points are levels from patient with pernicious anemia.

PREPARATIONS CONTAINING BEESWAX

As may be seen in chart 4, this patient received an unusually large amount (2 million and 50 thousand units) of penicillin during the first forty-eight hours of treatment. The reason for this is that during the first twenty-four hours of therapy he had received an oil preparation which was combined with 5 per cent beeswax. At the time of this patient's illness it was discovered from the studies of the pharmacology of orally administered penicillin which were proceeding concurrently with the therapeutic investigation that preparations of penicillin which contained beeswax are associated with erratic absorption and unpredictable blood penicillin concentrations. It was decided, therefore, to change to another preparation and to repeat the first day of the regimen. Only 2 other patients in the series received preparations containing beeswax. In both patients, however, therapy was initiated with 200,000 units of plain penicillin in water followed by the penicillin-oil-beeswax preparation. It is possible that the somewhat delayed crisis in the patient presented in chart 4 merely represented the severity of his infection and was not a result of irregular absorption of penicillin from the beeswax preparation. However, in the absence of a rapid method for the estimation of the concentration of penicillin in the blood, preparations for the oral administration of penicillin which contain substances which retard absorption should not be used in the treatment of serious infections until their reliability is established.

7. Tillett, Cambier and McCormack,[12] Kinsman, Daniels, Cohen, McCracken, D'Alonzo, Martin and Kirby.[13]

CONCENTRATIONS OF PENICILLIN IN THE BLOOD DURING THE ACUTE ILLNESS

The penicillin concentrations attained in the blood at various intervals after oral administration were measured in 9 patients during the period of acute illness. The Kirby-Rantz modification [8] of the Rammelkamp method of bioassay was used for most of the determinations, although a few were made by the original Rammelkamp technic.[9] As performed in this laboratory the maximum sensitivity of the latter test is 0.078 unit per cubic centimeter, and of the former 0.04 unit per cubic centimeter in the detection of penicillin in an unknown specimen. In the majority of instances the specimens of blood were obtained after therapy had been in progress for some hours, and no attention was paid to whether the patient had recently ingested food. As a result, the determinations represent a random selection and some may reflect a cumulative effect.

As may be seen in chart 5, a blood penicillin concentration of 0.04 unit per cubic centimeter or higher was present at thirty and sixty minutes after a 50,000 unit dose in all but 2 patients. At 120 minutes after the same dose there was no detectable penicillin in the serum of 1 patient, but in the 4 others concentrations of 0.04 to 0.1 unit per cubic centimeter were present.

Only 3 patients were studied after larger doses (150,000 and 200,000 units respectively), and in 2 a relatively high penicillin concentration (0.1 to 1.0 unit per cubic centimeter) was present 120 minutes after administration; in the other there was no detectable penicillin in the blood sixty minutes after ingestion. The determinations enclosed in a circle (chart 5) were all made on specimens from a patient who had pernicious anemia. The higher levels attained in this patient may be a reflection of gastric anacidity. Unfortunately, only 1 patient was studied after the ingestion of penicillin in oil. The levels attained in this patient were of the same order of magnitude as were observed in others of the group.

In general, the penicillin concentrations observed in these acutely ill patients, although variable, were somewhat higher than is usually encountered following administration of the same oral dose to normal fasting subjects. The explanation of this phenomenon is not entirely clear. It is probable that several factors such as dehydration, accumulation of penicillin in the blood and variations in the effect of the infection on gastric and intestinal motility may play a role. It is equally possible, as discussed later, that under certain conditions, however, an infection could influence gastric motility in such a manner as to inhibit the absorption of ingested penicillin.

COMMENT

Forty-five patients with pneumococcic pneumonia have been treated by the oral administration of penicillin, with only one death and one serious complication. In the 3 instances in which the route of penicillin administration was changed from the oral to the intramuscular, it would seem that no additional advantage was gained. The therapeutic results were as satisfactory whether the penicillin was administered as a suspension in oil or merely as the plain powder dissolved in water or enclosed in a gelatin capsule. With both methods the penicillin concentrations attained in the blood of the patients acutely ill with pneumonia were comparable or superior to those observed following the oral administration of similar amounts of penicillin to normal subjects.

The fact that the effectiveness of orally administered penicillin is impaired by the ingestion of food does not interfere with therapy. Virtually all patients with an acute pneumonia have not eaten for some hours before admission to the hospital. It was suggested that the meals served in the hospital might be spaced midway between two doses, but as no particular effort was made to enforce this recommendation it is probable that in the busy services it was not always carried out. In any event, at the most only three of the eight or twelve daily doses could have been affected by the ingestion of food.

A number of the patients presented a moderate degree of abdominal distention which did not seem to affect the therapeutic efficiency of the orally administered material. The absorption of ingested penicillin can be hindered, however, by inhibition of gastric motility.[4] Therefore, if abdominal distention was accompanied by gastric dilatation, as is so frequently the case, it is probable that much larger doses of penicillin would be required for effective oral therapy. Until more information is available on this point, the presence of a moderate or pronounced degree of abdominal distention should be regarded as a contraindication to the use of penicillin by mouth.

A period of thirty to sixty minutes after ingestion is required for the attainment of the peak concentration of penicillin in the blood. Such a short delay would be of no significance in the treatment of most patients with pneumococcic pneumonia. In a critically ill patient with peripheral circulatory failure it is conceivable that even so short a period might be of importance. Under such circumstances, therefore, it would seem to be advisable to administer the initial dose of penicillin parenterally.

As previously mentioned, approximately four or five times as much penicillin must be given orally as intramuscularly to attain the same penicillin concentration in the blood. The regimens used in the treatment of this series of patients with pneumococcic pneumonia were calculated conservatively on the five to one ratio. Accordingly, the initial oral dose of 200,000 units is regarded as the approximate equivalent of 40,000 units intramuscularly and the subsequent 50,000 unit dose as the equivalent of 10,000 units. The administration of penicillin at two hour intervals by either of these regimens (oral or intramuscular) is usually followed throughout the greater part of the period by blood penicillin concentrations above a level (0.04 unit per cubic centimeter) which is presumably sufficient to inhibit most pneumococci.

Tillett, Cambier and McCormack [10] have demonstrated that it is possible to treat pneumococcic pneumonia successfully by the intramuscular administration of penicillin in regimens which would not maintain detectable concentrations of penicillin in the blood continuously. In patients whose illness was of only moderate severity, these investigators [11] found that 10,000 units intramuscularly at three hour intervals for only four doses per day was a satisfactory regimen. In more severe infections they recommend an initial intravenous dose of 25,000 units, which is repeated at a three hour interval. Subsequent therapy consists of 10,000 units intramuscularly at three hour intervals, the

8. Kirby, W. M. M., and Rantz, L. A.: Methods of Measuring Penicillin Concentrations in Body Fluids, J. Bact. **48**: 603, 1944.
9. Rammelkamp, C. H.: A Method for Determining the Concentration of Penicillin in Body Fluids and Exudates, Proc. Soc. Exper. Biol. & Med. **51**: 95, 1942.
10. Tillett, Cambier and McCormack.[12] Tillett, McCormack and Cambier.[11]
11. Tillett, W. S.; McCormack, J. E., and Cambier, M. J.: The Treatment of Lobar Pneumonia with Penicillin, J. Clin. Investigation, to be published.

number of daily doses varying somewhat according to the condition of the patient. They recommend the initial larger doses in the more severe infections for the purpose of controlling the bacteremia and hence preventing metastatic complications.

The penicillin regimens used for the oral therapy of our series of patients with pneumococcic pneumonia were modeled in part after these intramuscular regimens studied by Tillett and his associates. The large initial dose to combat possible bacteremia and the omission of therapy throughout the night after the initial defervescence has been maintained are merely an adaptation of their systems to oral administration. The omission of penicillin therapy during a part of the night is undoubtedly a convenience to both patients and staff. Whether it is good chemotherapeutic practice in terms of the attainment of the maximum possible therapeutic result in the shortest period of time has not been established as yet. As far as could be ascertained in such a small series, the therapeutic results in the 6 patients in whom the night doses were omitted were identical with those obtained with the other members of the group.

Be that as it may, the return of fever and other minor evidences of infection in 5 patients after the cessation of penicillin therapy would indicate that all of the treatment regimens used in this series, although successful, were somewhat less than ideal. To be sure, the particular relapses observed were minor in character and were apparently without effect on the outcome of the disease. It is conceivable that this might not always be the case. Furthermore, a diagnostic problem is created. For the relapse, manifested by the return of fever and possibly by an increase in leukocytes, develops at a time when more serious complications such as empyema or endocarditis are most likely to make an appearance. To exclude the presence of such complications requires a reinvestigation of the case and the performance of laboratory tests, to say nothing of the worry occasioned the patient and the physician. The benign character of the relapse as distinguished from a complication is eventually made evident by the prompt disappearance of the former, either spontaneously or following the reinstitution of penicillin therapy.

This phenomenon of the return of signs of infection within a short period of the cessation of chemotherapy is by no means unique to the oral administration of penicillin. Several groups of investigators [7] have noted the same phenomenon in the treatment of pneumococcic pneumonia by the parenteral administration of penicillin. Tillett and his colleagues [12] observed that the administration of large doses of penicillin in a single day to patients acutely ill with pneumonia produced a well defined remission of the signs of infection, which was followed within twenty-four or thirty hours by a relapse. In addition, these investigators [11] reported that, when penicillin was given over a four day period and then discontinued despite the presence of a low grade fever, the fever might continue for several days thereafter although the eventual result was perfectly satisfactory. In a few patients who continued to have fever for a longer period despite the continued intramuscular administration of presumably adequate amounts of penicillin, a change of chemotherapy to sulfadiazine was without noticeable effect on the rate of recovery, which was eventually complete. The latter cases of Tillett's are of interest in connection with the 2 cases reported here in which the change from the oral to the intramuscular administration of penicillin exerted no apparent effect on the course of the persistent but eventually subsiding fever.

At Fort Bragg [13] it was noted that in 57 per cent of a series of 75 patients with pneumococcic pneumonia treated with penicillin by the intramuscular route there occurred a transient increase in temperature in the period immediately following the initial crisis. Seven patients in the series showed a febrile relapse after cessation of therapy. However, all of the 7 had received small amounts of penicillin as part of an attempt to establish the minimal effective dose regimen for pneumonia. Despite the occurrence of the secondary fevers, the therapeutic results observed in this series were uniformly excellent.

Thus it is evident that with the penicillin treatment of pneumococcic pneumonia by either the oral or the intramuscular route there are two types of febrile relapses which occur in a minority of the patients. In one there may be a partial return of fever after the initial crisis despite the continued administration of the penicillin, whereas in the other the fever and minor signs of infection may return after the cessation of therapy in a previously afebrile patient.

The underlying mechanism of these phenomena has not been established. It is possible that the penicillin inhibits or destroys only the organisms in the heavily infected edematous zone at the periphery of the pneumonia but is unable to penetrate the exudate sufficiently to eliminate the pneumococci from the consolidated areas, in which case the destruction of the latter organisms would have to await the development of the normal cellular and immune forces in the host. In general, these mechanisms of immunity are not operating effectively until the fourth to the eighth day of the disease.

Further investigation of this problem should be pursued. In the absence of more exact information, however, and as the supply of penicillin is no longer so limited, it would seem that the duration of treatment in penicillin therapy of pneumococcic pneumonia, whether oral or parenteral, should be prolonged over a period well beyond that required for the attainment of maximum effectiveness of the natural defenses of the host. The patients treated in the latter part of the series presented in this report were accordingly treated for seven days or longer, depending on the duration or severity of the infection.

SUMMARY

1. Forty-five patients with pneumococcic pneumonia have been treated with the oral administration of penicillin with only one death and one serious complication, an empyema.

2. The therapeutic results in this series were comparable to those observed in the penicillin treatment of pneumococcic pneumonia by the intramuscular route.

3. Although relatively huge amounts of penicillin were used at the beginning of the study, the patients in the latter half of the series received 750,000 units on the first day and 400,000 to 600,000 units on the subsequent days of therapy.

4. It is believed that, in order to diminish the possibility of relapse, therapy should be prolonged for seven or more days, depending on the duration and the severity of the infection.

12. Tillett, W. S.; Cambier, M. J., and McCormack, J. E.: The Treatment of Lobar Pneumonia and Pneumococcal Empyema with Penicillin, Bull. New York Acad. Med. **20**: 140, 1944.

13. Kinsman, J. M.; Daniels, W. B.; Cohen, S.; McCracken, J. P.; D'Alonzo, C. A.; Martin, S. P., and Kirby, W. M. M.: The Treatment of Pneumonia with Sulfonamides and Penicillin, J. A. M. A. **128**: 1219 (Aug. 25) 1945.

5. The therapeutic results obtained following the use of powdered penicillin dissolved in water or enclosed in capsules were as good as were observed after the administration of penicillin suspended in oil.

6. The concentrations of penicillin attained in the blood of 9 patients acutely ill with pneumonia after the ingestion of the aqueous solution, or the dry powder of penicillin (8 patients) or the oil suspension (1 patient) were comparable to or possibly higher than those usually attained after the same oral dose in normal subjects.

525 East Sixty-Eighth Street.

PENICILLIN BY MOUTH

REPORT OF A CLINICAL TRIAL

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In 1941 Abraham and his associates [1] attempted to administer penicillin by the oral route and found that it was rapidly destroyed by the gastric acidity. These investigators employed phenyl salicylate coated capsules with relatively small doses of the drug but abandoned this method after unsuccessful trials. In corroboratory experiments Rammelkamp and Keefer [2] also demonstrated that penicillin was inactivated by the hydrochloric acid in the stomach. However, following intraduodenal administration, fairly adequate penicillin concentrations were demonstrated in the blood, approximating those achieved after intramuscular injection. In this regard Rammelkamp and Helm [3] gave a penicillin solution containing 20,000 Florey units by mouth to 2 patients with achlorhydria associated with pernicious anemia and observed that the blood concentrations of penicillin were greater than those assayed in normal subjects.

In all of these preliminary experiments in which the oral route was used, comparatively small doses, ranging between 10,000 and 20,000 units, were administered. Antecedent neutralization of the gastric acidity by the use of sodium bicarbonate was attempted in some of these experiments, but in the majority of cases no effort was made to provide any mechanical protection for the conveyance of the penicillin to the small intestine.

The advantages of the oral route of administration of penicillin are obvious and require little elaboration when compared with the prevalent parenteral methods. Because of the rapid rate of excretion in the urine, frequent intramuscular or intravenous injections of penicillin are required to maintain therapeutic concentrations in the blood. The inconvenience of such a regimen, both to the patient and to the hospital personnel, are manifest. Continuous intravenous infusions maintain a more constant serum level, but close supervision is necessary and the incidence of thrombosis is large enough to make the intramuscular route preferable.[4] Furthermore, hospitalization is usually mandatory for the treatment of infections susceptible to penicillin when the parenteral route is employed.

Consideration of these difficulties has stimulated investigation of methods of prolonging therapeutic blood levels so that less frequent injections will be required. Toward this end, production of a kidney excretory blockade by diodrast [5] or para-amino hippuric acid [6] has been tried but does not seem practical for routine use. Similarly a combination of penicillin in a 3 per cent beeswax-peanut oil suspension [7] for intramuscular use, as well as preliminary chilling of the muscle,[8] has been employed to secure prolongation of therapeutic blood levels by decreasing the rate of absorption from the site of injection.

The greater availability of penicillin at the present time makes possible a reevaluation of the oral route of administration. In a preliminary report we [9] demonstrated that adequate blood concentrations of penicillin could be obtained when penicillin is given by mouth. Several other reports employing various technics for oral administration have appeared in the recent literature; these include combination of the drug with mild antacids [10] or suspension in oils [11] or raw egg solutions.[12]

The following report represents a preliminary clinical trial of the efficacy of penicillin when given by the oral route:

METHODS AND MATERIALS

To avoid inactivation, penicillin when given by mouth must escape the destructive influence of gastric acidity and be absorbed from the small bowel before meeting the inhibitory action of Escherichia coli.

For the purposes of these experiments the contents of an ampule containing 100,000 units of powdered sodium penicillin was transferred to a plain gelatin capsule (No. 1), which was moistened and sealed and in turn placed in a second capsule of the next larger size (No. 0). Hardening of the capsule containing the penicillin was then accomplished by placing it in solution of formaldehyde U. S. P. diluted 1:20 for five seconds, followed by immersion in 95 per cent alcohol for five minutes. The purpose of the double capsule was to provide additional mechanical protection for the penicillin in its passage through the stomach. Two aluminum hydroxide tablets [13] were given one-half hour prior to the ingestion of each penicillin capsule in order to neutralize the hydrochloric acid in the stomach.

From the Children's Hospital.
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Drs. Joseph S. Wall and E. Clarence Rice of the Medical Research Committee, Children's Hospital, Washington, D. C., gave helpful suggestions and advice.

1. Abraham, E. P.; Florey, H. W.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G., and Jennings, M. A.: Further Observations on Penicillin, Lancet **2**: 177 (Aug. 16) 1941.
2. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Distribution of Penicillin, J. Clin. Investigation **22**: 425 (May) 1943.
3. Rammelkamp, C. H., and Helm, J. C., Jr.: Studies on the Absorption of Penicillin from the Stomach, Proc. Soc. Exper. Biol. & Med. **54**: 324 (Dec.) 1943.
4. Lyons, C.: Penicillin Therapy of Surgical Infections in the U. S. Army, J. A. M. A. **123**: 1007 (Dec. 18) 1943.
5. Rammelkamp, C. H., and Bradley, S. E.: Excretion of Penicillin in Man, Proc. Soc. Exper. Biol. & Med. **53**: 30 (March) 1943.
6. Beyer, K. H.; Woodward, R.; Peters, L.; Verwey, W. F., and Mittis, P. A.: Prolongation of Penicillin Retention in Body by Means of Para-Amino Hippuric Acid, Science **100**: 107 (Aug. 4) 1944.
7. Romansky, M. J., and Rittman, G. E.: Penicillin: Prolonged Action of Beeswax-Peanut Oil Mixture, Bull. U. S. Army M. Dept., October 1944, No. 81, p. 43.
8. Trumper, M., and Hutter, A. M.: Prolonging Effective Penicillin Action, Science **100**: 432 (Nov. 10) 1944.
9. Burke, F. G.; Ross, S., and Strauss, C.: Oral Administration of Penicillin: Preliminary Report, J. A. M. A. **128**: 83 (May 12) 1945.
10. György, P.; Vandergrift, H. N.; Elias, W.; Colio, L. G.; Barry, F. M., and Pilcher, J. D.: Administration of Penicillin by Mouth: Preliminary Report, J. A. M. A. **127**: 639 (March 17) 1945.
11. Libby, R. L.: Oral Administration of Penicillin in Oil, Science **101**: 178 (Feb. 16) 1945.
12. Little, C. J. H., and Lumb, G.: Penicillin by Mouth, Lancet **1**: 203 (Feb. 17) 1945.
13. Creamalin (Winthrop Chemical Company, Inc., 170 Varick Street, New York).

From preliminary experiments [9] the impression was gained that slightly higher penicillin blood levels were obtained when the capsules were taken on an empty stomach. In the clinical trials herein reported, a light diet with low fat content and moderate fluid intake was employed routinely. A three hour schedule of administration of the drug was followed, with slight adjustment of the diet schedule so that at no time was the penicillin capsule administered simultaneously with meals.

The subjects selected for these clinical trials included 14 children ranging in age from 2 to 11 years. There were 10 cases of gonorrhea, 2 cases of bronchopneumonia and 2 cases of cellulitis. Gonorrhea was particularly well suited for a clinical trial of the efficacy of the oral administration of penicillin because of readily demonstrable bacteriologic evidence of cure.

In cases in which penicillin assays were done while under treatment, samples of venous blood were taken at the end of one-half, one, two and three hours. Also, in 7 instances, penicillin levels were assayed during a consecutive six hour period to demonstrate the incremental rise in the blood penicillin concentration resulting from the ingestion of a second capsule three hours after the first dose.

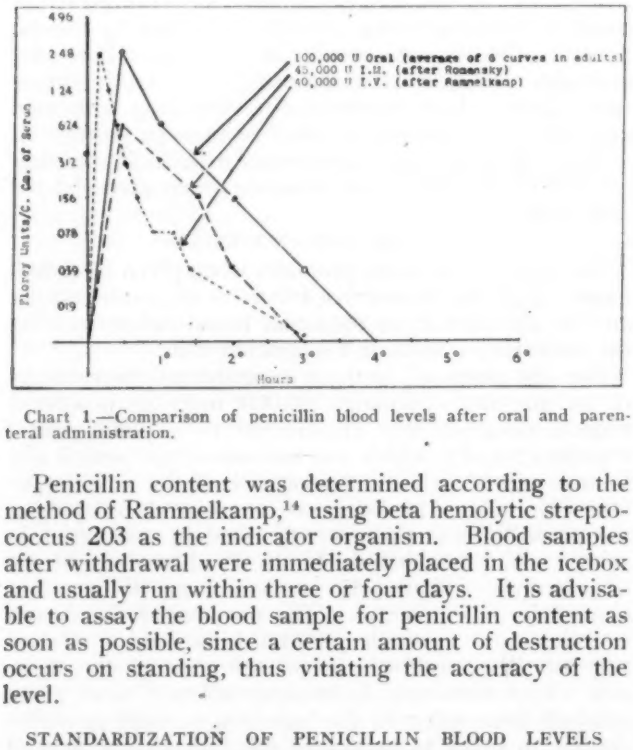
100,000 U Oral (average of 6 curves in adults)
45,000 U I.M. (after Romansky)
40,000 U I.V. (after Rammelkamp)
Florey Units/C. cm. of Serum
Hours

Chart 1.—Comparison of penicillin blood levels after oral and parenteral administration.

Penicillin content was determined according to the method of Rammelkamp,[14] using beta hemolytic streptococcus 203 as the indicator organism. Blood samples after withdrawal were immediately placed in the icebox and usually run within three or four days. It is advisable to assay the blood sample for penicillin content as soon as possible, since a certain amount of destruction occurs on standing, thus vitiating the accuracy of the level.

STANDARDIZATION OF PENICILLIN BLOOD LEVELS AFTER ORAL ADMINISTRATION

In a preliminary report on the oral administration of penicillin,[9] single 100,000 unit capsules were given to normal adults. The average of six serum penicillin concentration curves obtained in these subjects are represented in chart 1 and comparison is made with the curves obtained after parenteral administration of between 40,000 and 45,000 units observed by Rammelkamp [2] and Romansky.[7] It will be noted that the levels achieved after oral administration compared favorably and in some respects surpassed those observed after parenteral injection of approximately one-half the amount of penicillin. By comparison, McDermott and his associates [15] administered 315,000 Florey units of penicillin orally to four groups of fasting patients in four different forms: (1) penicillin in water, (2) in corn oil, (3) in water preceded by magnesium trisilicate neutralization of the gastric acidity and (4) in a 4 per cent beeswax-peanut oil mixture. In each instance

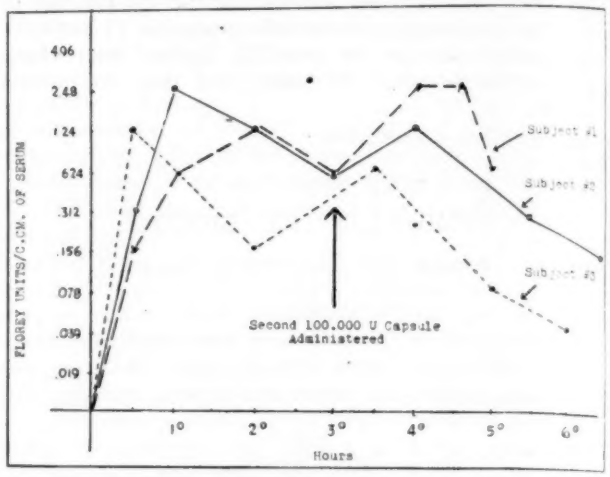

Chart 2.—Penicillin blood levels obtained in 3 children during a five to six and one-half hour period after oral administration of a 100,000 unit capsule of penicillin. Note the incremental rise in blood concentration following ingestion of a second 100,000 unit capsule three hours after the first dose.

serum penicillin concentrations of from 0.312 to 1.25 Florey units per cubic centimeter were obtained for thirty to sixty minutes after administration. From these results McDermott recommended an oral dose five times the amount used in intramuscular therapy.

However, it will be noted in chart 1 that, when 100,000 units was given, a double capsule being employed as a mechanical protection, an average level of 2.49 Florey units per cubic centimeter was obtained at the end of one-half hour and therapeutic levels were still demonstrable in the blood stream three hours after administration. It is possible that the use of only approximately twice the parenteral dose with this method, rather than the fivefold dose recommended by McDermott to achieve comparable results, is due in no

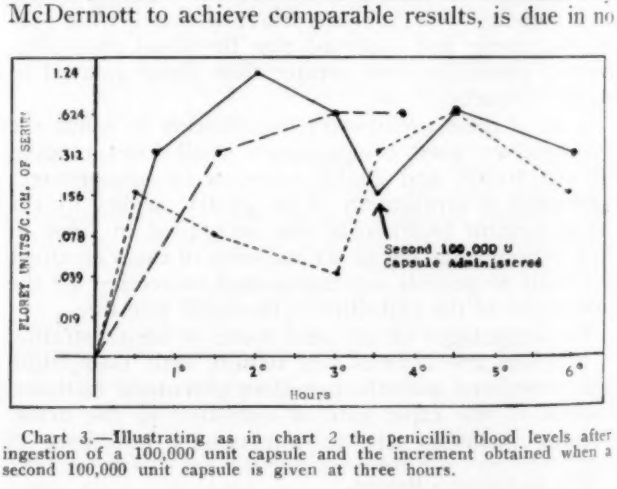

Chart 3.—Illustrating as in chart 2 the penicillin blood levels after ingestion of a 100,000 unit capsule and the increment obtained when a second 100,000 unit capsule is given at three hours.

small part to the use of mechanical protection for the penicillin afforded by a double gelatin capsule.

When 200,000 units as a single dose was given in a double capsule, higher levels of penicillin content in the blood were observed, ranging between 2.48 and 9.98

14. Rammelkamp, C. H.: A Method of Determining the Concentration of Pehicillin in Body Fluids and Exudates, Proc. Soc. Exper. Biol. & Med. **51**: 95 (Oct.) 1942.

15. McDermott, W.; Bunn, P. A.; Benoit, M.; DuBois, R., and Haynes, W.: Oral Penicillin, Science **101**: 228 (March 2) 1945.

units per cubic centimeter one-half hour after ingestion. Therapeutic concentrations were maintained with this dose between four and five and a half hours, suggesting that blood concentration and prolongation may be directly proportional to the dosage employed.

Similarly, in the following clinical evaluation, a characteristic of the curves obtained in patients under treatment, after the oral administration of 100,000 units in a double capsule, was the relatively rapid appearance of large amounts of penicillin in the blood stream (charts 2 and 3). In the majority of instances the highest titers were observed in the first thirty to ninety minutes after ingestion, indicating prompt absorption from the small bowel. In 2 cases a somewhat delayed rate of absorption was obtained, as indicated by the appearance of a maximum concentration after two hours. Subsequent levels showed decreasing amounts during the next two hours. A feature common to all the curves was the continued presence of therapeutic serum levels of penicillin three hours after the ingestion of a 100,000 unit capsule. The highest penicillin serum levels ranged between 0.624 and 2.48 Florey units with one exception, when 0.156 unit was recorded. As may be noted in charts 2 and 3, the ingestion of a second 100,000 unit capsule produced an incremental curve in the penicillin titer similar to the initial three hour curve.

It may be concluded that, when these capsules are administered every three hours, therapeutic concentrations can be maintained constantly throughout the course of treatment for all susceptible infections.

Rammelkamp and Keefer [16] found that the degree of antibacterial action was in direct proportion to the concentration of penicillin in the serum and found the maximum effects against Streptococcus hemolyticus to be in concentration of from 0.019 to 0.156 Florey unit per cubic centimeter of serum. Against staphylococci slightly higher levels were necessary, at least 0.156 Florey unit being required for maximum effect. Gonococci and pneumococci are both rated as highly susceptible organisms.

A comparison between the penicillin levels in children and adults observed after the oral administration of 100,000 units in a capsule reveals no especial difference. Interestingly, the curves noted in the two groups were similar in regard to concentration and prolongation. Adequate explanation for this observation is lacking, since theoretically one might expect higher and longer sustained levels in children if the dosage of oral penicillin could be calculated on the basis of weight. Further investigation is contemplated to establish the optimal dose by this method in both age groups.

In none of the cases included in this report were any objective or subjective symptoms of toxicity noted even after these relatively large doses. In 1 case, not included in this series, a total dose of 11,500,000 units was given over a period of fourteen days without toxic effect.

This method of administering penicillin has a wide range of applicability, especially in older children and adults. However, in some of the younger children it was necessary to place the capsule in the esophagus because of their inability to swallow the capsules spontaneously.

CLINICAL TRIALS

Gonorrhea.—Many reports have appeared in the recent literature concerning the efficiency of penicillin in the treatment of gonorrhea in adults. Observations on the value of penicillin for the treatment of this infection in children have been less numerous but equally satisfactory. There is general agreement that this drug is the most efficacious single agent for the management of this disease. It is curative for chemoresistant strains of gonococci and has the additional virtue of being relatively nontoxic.

Details of Treatment

Case	Sex	Race	Age, Years	Individual Dose of Oral Penicillin, Units	Dosage Schedule	Total Dose, Units	Interval Before Negative Culture, Hours	Days Negative	Comment
1	♀	W	4	100,000	Every 3 hours	300,000	12	4	Failed to respond to 200,000 units; subsequently cured with 300,000 units; 4 negative smears and cultures; no further clinic visits after discharge
2	♂	N	6	100,000	Every 3 hours	300,000	12	74	Failed to respond to 200,000 units; subsequently cured with 300,000 units; 6 negative smears and cultures
3	♀	N	8	100,000	Every 3 hours	400,000	12	35	Relapse after 300,000 units; subsequently cured with 400,000 units; 5 negative smears and cultures
4	♀	N	4	100,000	Every 3 hours	400,000	24	48	Cured: 9 negative smears and cultures
5	♀	N	3	100,000	Every 3 hours	400,000	12	40	Cured: 8 negative smears and cultures
6	♀	N	3	100,000	Every 3 hours	400,000	12	28	Cured: 5 negative smears and cultures
7	♀	N	9	100,000	Every 3 hours	400,000	12	66	Cured: 6 negative smars and cultures
8	♀	N	2	100,000	Every 3 hours	400,000	12	36	Cured: 6 negative smears and cultures
9	♀	W	7	100,000	Every 3 hours	400,000	12	26	Cured: 6 negative smears and cultures
10	♀	N	3	100,000	Every 3 hours	400,000	6	24	Cured: 4 negative smears and cultures

In view of the well known unreliability of smears alone as diagnostic criteria of gonorrhea, all the cases showed both positive smears and cultures before institution of therapy. Clinical cure does not necessarily coincide with bacteriologic cure; the criterion employed as used in the table was at least four negative smears and cultures obtained over a period of from three to four weeks after termination of treatment. The adequacy of this observation period is in agreement with the report of Lapenta and his associates.[17] These investigators noted in their observations of 113 cases of gonococcic urethritis treated with intramuscularly

16. Rammelkamp, C. H., and Keefer, C. S.: Penicillin: Its Antibacterial Effect in Whole Blood and Serum for the Hemolytic Streptococcus and Staphylococcus Aureus, J. Clin. Investigation **22**: 649 (Sept.) 1943.

17. Lapenta, R. G.; Weckstein, A. M., and Sarnoff, H.: The Inadequacy of a Standardized Dosage of Penicillin in the Treatment of Gonococcic Urethritis, J. A. M. A. **128**: 168 (May) 1945.

administered penicillin that not a single relapse occurred in a three month follow-up when three negative cultures were obtained over a period of twenty-one days.

The therapeutic index of this infection is directly proportional to several factors, viz. the sensitivity of the particular strain of gonococcus to penicillin, the duration of symptoms prior to starting treatment and the extent of the infection. In this regard there is a lack of unanimity of opinion in the literature regarding the optimal dosage of parenterally administered penicillin in the treatment of gonorrhea. Mahoney and his associates [18] report only 74 per cent of cures after administration of 150,000 units intramuscularly. Lapenta [17] reported 70 per cent cures with 100,000 units. These figures do not coincide with the greater percentage of cures reported by several other investigators who administered 50,000 to 100,000 units.[19]

In preliminary attempts to standardize the oral dosage required for gonorrhea, the first 2 patients treated were given 100,000 units at three hour intervals for two doses. However, this dosage failed to effect a cure. Three days later these 2 patients received 100,000 units for three doses and were cured. Similarly, the next patient was given three doses of 100,000 units, following which three negative vaginal smears and cultures were obtained. She was then discharged from the hospital but, ten days later, a follow-up smear and culture proved to be positive and a second course of oral penicillin consisting of 100,000 units every three hours for four doses was given with successful results. Following these preliminary reversals, it was clear that either the total dose of penicillin administered was insufficient or that treatment should have been continued for a longer time. It was therefore deemed advisable to adopt arbitrarily a schedule consisting of 100,000 unit capsules given at three hour intervals for four doses. After the selection of this regimen no relapses occurred in the subsequent 8 cases.

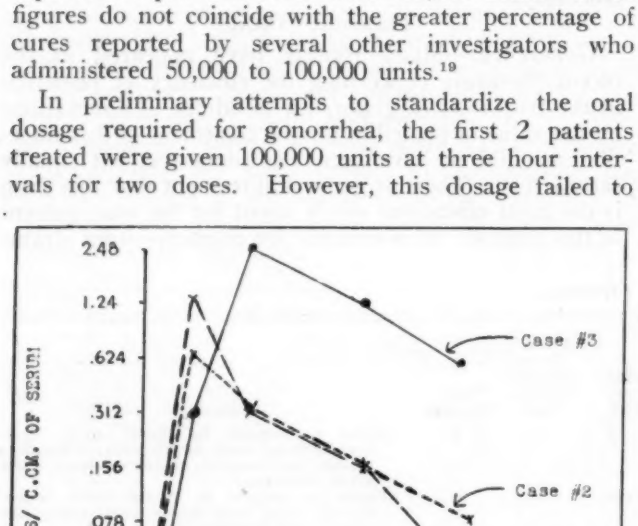

Chart 4.—Penicillin blood levels obtained during a three hour period after the administration of 100,000 units by mouth in 3 cases of gonorrhea in children.

The minimal dosage of oral penicillin for the treatment of this infection cannot be categorically defined. It is likely that cures could have been effected in the majority of cases with less than 400,000 units, especially if smaller single doses were given for a longer sustained period of treatment. However, it is believed that the employment of a larger dose than is considered necessary for every case would insure against symptomatic cures with the production of chronic carriers and prevent an increase in resistance of the strain of organism to subsequent treatment. It is clear that a much larger series of cases must be treated before any definitive statement can be made regarding the optimal oral dose.

Reference to chart 4 illustrates the penicillin concentrations obtained in 3 of these patients who were followed with serum levels during the course of treatment. In the curve obtained in subject 1, after oral administration of the first 100,000 unit capsule the blood concentration rose rapidly, attaining a maximum concentration of 2.49 Florey units per cubic centimeter at the end of one hour; after three hours a level of 0.624 Florey unit per cubic centimeter was still demonstrable. In subjects 2 and 3, maximum levels of 0.624 and 1.24 Florey units per cubic centimeter respectively were obtained one-half hour after oral administration of the 100,000 unit capsule, followed by a moderately rapid parallel fall in both instances with 0.078 and 0.039 Florey unit per cubic centimeter still present after three hours. It will be noted that in all three curves the penicillin levels taken at frequent intervals during the three hour period were all well within or above the therapeutic range of penicillin against gonococci. The degree of antibacterial action of penicillin has been shown to be directly related to the concentration of penicillin in the blood; as previously noted, the maximum effects of penicillin against gonococci are obtained when blood concentrations range from 0.019 to 0.156 Florey unit per cubic centimeter.

Reference to charts 2 and 3 illustrate the incremental elevations obtained when a subsequent 100,000 unit capsule is given at the end of three hours. It may be inferred that similar rises in the penicillin blood levels would be present with each additional three hour dose. From this one may postulate the presence of therapeutic concentrations at any instant throughout the nine or twelve hour period during which therapy is maintained.

As noted in the table, a bacteriologic cure was effected within six to twenty-four hours after the institution of therapy with the majority of cases showing no organisms after twelve hours.

A rather consistently close parallel in the serum penicillin values at comparable intervals in both children and adults was observed following the ingestion of 100,000 unit capsules even though on a theoretical basis some disparity in the penicillin concentrations might be expected when identical dosage is given to the two age groups. Although the cures reported here deal with gonorrhea in children, the employment of the same schedule of 100,000 unit capsules given every three hours for four doses would probably be similarly efficacious. However, this remains to be proved by clinical trial in a series of gonorrhea in adults.

18. Mahoney, J. F.; Ferguson, C.; Buchholtz, M., and Van Slyke, C. J.: Am. J. Syph. Gonor. & Ven. Dis. **27**: 525 (Nov.) 1943.

19. Craig, W. M.; Thompson, G. J.; Hutter, A. M.; Barksdale, E. E.; Pfeiffer, C. C., and Woolley, P. V., Jr.: Penicillin: A Progress Report, U. S. Nav. M. Bull. **44**: 453 (March) 1945. Fox, H. J.: Penicillin Program at the United States Naval Hospital, Portsmouth, Va.: Observations and Results, War Med. **7**: 170 (March) 1945. Dunfield, V. M., and Mandel, A.: Penicillin—The Rapidity of Its Effect in the Treatment of Gonorrhea, New York State J. Med. **45**: 614 (March 15) 1945. Neilson, A. W.; Chard, F. H.; Hanchett, L. J.; Ayers, E.; Stepita, C. T., and Rodriquez, J.: Penicillin in the Treatment of Syphilis and Gonorrhea, South. M. J. **38**: 204 (March) 1945.

Pneumonia.—Two cases of pneumonia were treated by the oral administration of penicillin. Case summaries follow:

CASE 1 (chart 5).—J. B., a Negro girl aged 7 years, was admitted to Children's Hospital with a history of fever, chills and productive cough of six days' duration. Two days after the onset of illness she was seen by her local physician and was given 2 Gm. of sulfadiazine a day. Therapy was continued during the subsequent four days without any improvement being noted. On entry into the hospital, sputum examination revealed pneumococcus type XIV, and an x-ray of the chest confirmed the clinical impression of right lower lobe pneumonia. Blood culture was negative. Oral penicillin therapy was started and consisted of 100,000 unit capsules every three hours for ten doses, totaling 1,000,000 units.

Twelve hours after the initiation of treatment, her temperature dropped precipitously from 105 F. to 98.4 F. and she remained afebrile during the remainder of her hospital stay. This was followed by clinical evidence of resolution of the pneumonic process during the next two to three days. A chest film taken three days after termination of therapy was negative. Likewise the white blood cell count dropped from an initial 23,000 on entry to 5,400 within two days, and pneumococcus organisms were no longer demonstrable in the sputum after forty-eight hours.

Six samples of blood were taken over a consecutive six hour period while the patient was under treatment and assayed for penicillin content. As may be noted in chart 5, adequate amounts of the drug promptly appeared in the peripheral blood after the ingestion of the capsule and was maintained for three hours. When the second capsule was taken at the end of three hours, therapeutic concentrations were maintained and prolonged for another three hour period. The amounts present

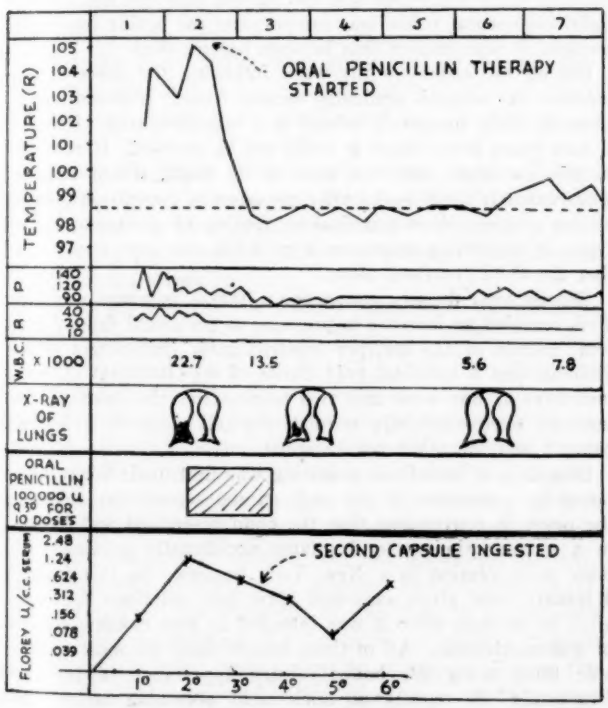

Chart 5.—Observations in case 1.

ranged between 0.078 and 1.24 Florey units per cubic centimeter during this interval.

CASE 2 (chart 6).—R. H., a Negro boy aged 7½ years, was admitted with the chief complaints of abdominal pain and fever. The temperature on admission was 100.4 F., rising four hours later to 104 F. Pronounced dyspnea, with splinting of the right side of the thorax, was noted. Examination of the chest revealed dulness on percussion, crepitant rales and diminished breath sounds over the right lower lobe. X-ray examination showed an infiltrative lesion in the right base indicative of pneumonia. Two sputum cultures showed Staphylococcus aureus hemolyticus.

The patient was given 100,000 units of penicillin orally every three hours for eight doses, totaling 800,000 units, with a defervescence of fever from 103.8 F. to 97.4 F. twelve hours

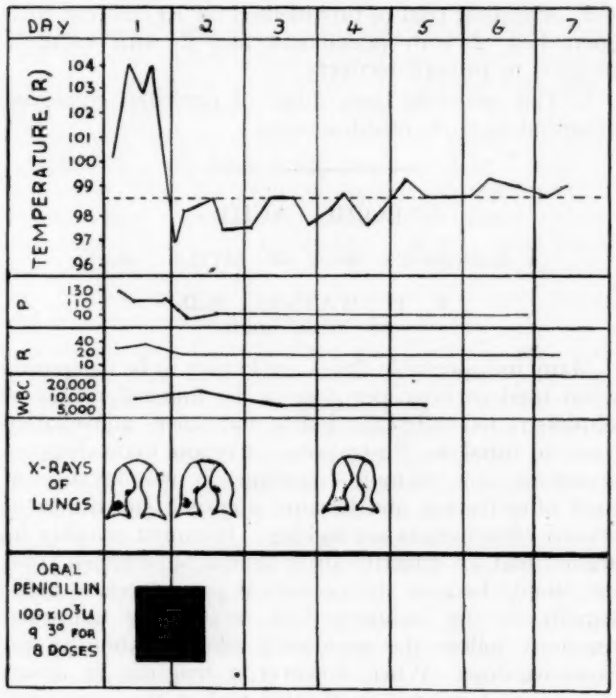

Chart 6.—Observations in case 2.

after the initiation of therapy. The temperature remained normal, with resolution of clinical and x-ray signs in three days (chart 6).

Further trials of oral penicillin therapy for the treatment of pneumonia are now under way. As in the management of gonorrhea, the establishment of an optimal oral dose necessitates an extensive clinical evaluation. In the reported 2 cases, 800,000 and 1,000,000 units given over a period of twenty-four and thirty hours produced a rapid response and cure.

Cellulitis.—Two cases of cellulitis of the face were treated with oral penicillin. One patient, a boy aged 11 years, had an extensive involvement of the left side of his face and neck secondary to an infected tooth. He was given 100,000 unit capsules every three hours for twelve doses and showed a prompt effective response, with rapid subsidence of inflammation and swelling in forty-eight hours. The second patient, a child aged 7 years who had periorbital cellulitis associated with suppurative ethmoiditis, also received a thirty-six hour course of oral penicillin consisting of 100,000 units every three hours. A similar prompt recovery ensued forty-eight hours after the initiation of therapy.

CONCLUSIONS

1. Adequate therapeutic blood concentrations of penicillin after oral administration can be obtained when the drug is protected against inactivation by gastric acidity. A method of providing this protection by the use of a double gelatin capsule hardened by formaldehyde-alcohol immersion together with prelimi-

nary neutralization of the hydrochloric acid in the stomach was adopted.

2. Administration of a 100,000 unit capsule every three hours by this method provides constant therapeutic penicillin levels well within or above the effective antibacterial range of most susceptible organisms throughout the course of treatment.

3. A clinical trial of this method on 10 children with gonorrhea, 2 with pneumonia and 2 with cellulitis resulted in prompt recovery.

4. The relatively large doses of penicillin employed produced no toxic manifestations.

BORIC ACID

A DANGEROUS DRUG OF LITTLE VALUE

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Many indispensable drugs are known to be dangerous when used in improper dose or by unusual routes of administration—digitalis, iodine and others immediately come to mind as illustrations. Certain toxic drugs—arsenicals, for example—continue in use because of their effectiveness and because nontoxic substitutes of proved effectiveness are lacking. It cannot sensibly be argued that an effective drug should be dropped from use simply because the occasional patient reacts unfavorably to the ordinary dose or because untoward reactions follow the accidental administration of an excessive dose. When, however, a drug can be shown to be almost entirely ineffective and at the same time dangerous even when used in ordinary ways, it is time to remove that drug from general use as rapidly as possible. Boric acid is such a drug.

Search of medical literature reveals many instances of accidental poisoning with boric acid and not a few following its calculated use in ointment and powder form.[1] Fatal poisonings have been reported following the placing of boric acid powder into wounds and boric acid solution into the bladder,[2] the empyema cavity [3] and the bowel,[3a] and unreported instances of death following its use in the stomach in gastroscopy have come to our attention. Both the powder and the solution have caused death when they were accidentally administered in food. A recent occurrence of this kind, according to newspaper reports, involved poisoning of 19 infants in a New Jersey hospital, with fatal results in 4. At about the same time Dr. R. R. Cross, director of public health of Illinois, requested hospitals to eliminate boric acid from the inventory of drugs kept on hand for use in maternity divisions.[4] This request is reported to have followed the death of 2 infants in an Illinois hospital, attributed to boric acid poisoning. Boric acid preparations were removed from use in the children's ward of University Hospital (Michigan) several years ago following the fatal poisoning of an infant:

A. B., a white boy aged 4½ months, was admitted to the hospital because of very severe infantile eczema. Almost all of the body was involved in a typical, acute cracking and weeping eczema. Except for this the infant showed normal growth and development, and physical examination revealed no other deviation from normal.

Initial treatment consisted in continuous warm wet dressings of saturated boric acid solution applied to the entire body. The infant was restrained to prevent scratching. Colloidal baths were given twice daily. By the second day of this treatment the skin had improved considerably, several areas being ready for application of ointment. It was our custom then as now to use crude coal tar in 3 per cent strength, Lassar's paste being a commonly used base for the tar. Because one member of the staff had seen good results in treating less severe eczemas with boric acid ointment in another hospital, its use in place of tar ointment was decided on. Orders were to apply boric ointment twice daily to all inflamed areas which were not crusted or weeping. Only three general applications were made, a total amount of ointment somewhere between 60 and 100 Gm. being used. Twenty-four hours after the first application of boric acid ointment the temperature rose to 102 F. and two hours later the patient began having convulsions while receiving a colloidal bath. These convulsions lasted for about three hours, during which time the temperature rose to 107 F. They were controlled at the end of this time by codeine but were resumed again at intervals throughout the next few days. The most striking thing about the case during this time was the development of an intense and generalized erythema. This was so pronounced that the child was literally the color of a boiled lobster. Almost from the beginning of the convulsive seizures the eyes were wide open and staring but they did not follow a light, the corneal reflex was present, and the ocular fundi were normal. It was evident that he soon became deaf.

During the course of the week following the onset of convulsions the seizures gradually became fewer. Between convulsions the child apparently existed in a vegetative state. It was in a deep coma from which it could not be aroused. It remained in this condition until the time of its death, which occurred approximately three weeks after the onset of convulsions. Intravenous glucose, blood transfusions, feeding by gavage and other types of supportive treatment were tried, the only result being that the child remained alive.

Shortly after the first convulsion a lumbar puncture was done. This revealed an increase in pressure of the spinal fluid, 3 cells, total protein of 113 mg. per hundred cubic centimeters, 4 plus globulin and a colloidal gold curve of 000110000000. Lumbar punctures at one week and two weeks after the onset of convulsions were essentially normal, the cell count in 1 instance being 5 and the other not recorded.

Diagnosis of boric acid poisoning was first made when it was noted by a member of the staff on the second day following the onset of convulsions that the child resembled and behaved in a manner similar to 3 infants accidentally poisoned with boric acid solution in a New York hospital. In this instance 3 infants were given saturated boric acid solutions (parenterally) by mistake when it was intended to give isotonic solution of sodium chloride. All of these infants died, the most remarkable thing being the boiled lobster appearance of the skin. Practically all reports of boric acid poisoning which have appeared in the literature have remarked about this significant feature. Accidental poisoning similar to that in the New York hospital also occurred in a Chicago hospital infants' ward about twenty years ago. In this instance several infants were given boric acid solutions by mouth and nearly all of them died. This was not reported in detail in medical literature, but reports of the pathologist's examination at the postmortem have been published.[5]

From the Department of Pediatrics and Communicable Diseases, University of Michigan Medical School.

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2. Ponsold, A.: Fatal Boric Acid Poisoning Following Perforation of Urethra in Attempted Cystoscopy, Deutsche Ztschr. f. d. ges. gerichtl. Med. **34**: 321, 1940.

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3a. Sanders, J. H.: Boracic Acid Poisoning, Brit. M. J. **1**: 605, 1912. Harley, Vaughan: Boracic Acid Poisoning, ibid. **1**: 832, 1912. Bazin, A. T.: Acute Boracic Acid Poisoning (Fatal), Canad. M. A. J. **14**: 419, 1924.

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5. McNally, W. D., and Rust, C. A.: Distribution of Boric Acid in Human Organs in Six Deaths Due to Boric Acid Poisoning, J. A. M. A. **90**: 382 (Feb. 4) 1928.

Tests for boric acid on the spinal fluid and urine of our patient were strongly positive on three occasions but were no longer positive after one week. The turmeric test for boric acid was used.[6]

As already stated, the patient remained alive for approximately three weeks following the onset of the boric acid poisoning. During this time several spinal fluid examinations and other clinical observations indicated the absence of infection. However, on the third day preceding death there was an elevation of temperature, and a lumbar puncture done two days before death revealed a spinal fluid cell count of 185. Autopsy was obtained which showed the final cause of death to be lobular pneumonia and purulent meningitis (pneumococcic). Other postmortem diagnoses were generalized septicopyemia, fatty atrophy of the liver, extensive cloudy swelling of the kidneys and exfoliative dermatitis of the face and neck. It seemed quite clear that the pneumococcosis found at postmortem examination was a terminal invasion.

Our primary diagnosis of boric acid poisoning in this case was based, not so much on the finding of boric acid in the spinal fluid and urine of the patient, for we were subsequently able to show that the boric acid saturated dressings applied to a very small area of excoriation was sufficient to give a positive test for boric acid in the urine when an alcohol solution of turmeric was used, but more on the fact that the patient's appearance, symptoms and clinical course resembled known cases of boric acid poisoning. We had applied fairly large amounts of U. S. P. boric acid ointment, possibly as much as 100 Gm. (containing 10 per cent of boric acid) to extensive areas of broken skin, which furnished ideal conditions for its absorption. Apparently sufficient had been absorbed to cause a fixed acidosis and irreparable damage to the central nervous system, immediate evidence of this damage being convulsions, blindness and deafness and an increase in pressure and albumin in the spinal fluid.

COMMENT

With the advent of considerably more effective germicides, use of boric acid or its solutions has almost ceased. Probably the principal uses of boric acid or its solutions are in the eye and for irrigating body cavities. Both of these uses have been abandoned in the University Hospital. Boric acid solution as ordinarily used in collyria is probably without significant antiseptic or germicidal properties—many newer antiseptics are far superior to it. As a lavage to remove exudate (pus) from the eye a weak solution of sodium bicarbonate is much more effective.

Boric acid solution is widely employed by mothers of small infants in the care of the eyes. Freshly boiled and cooled water will do as well and has only the drawback of needing to be freshly prepared daily, whereas boric acid solution usually remains sterile on standing, though some organisms will survive in it for a significant time. Another use of boric acid solution is to cleanse the breasts of the mother before putting the infant to breast. Lembcke[7] has clearly shown the danger of relying on the supposed bactericidal properties of boric acid solution in this connection. He has reported an outbreak of diarrhea in a newborn nursery and shown that the probable pathogenic organism was transmitted from infant to infant by way of the boric acid solution soaked cotton pledgets used to sponge the breast before feeding. In the early part of World War II boric acid ointment was officially suggested as a dressing for burned areas of skin. This suggestion was later withdrawn—a wise decision, it would seem, in view of the demonstrated ease with which the damaged skin may absorb drugs. In 1910 Rubin and Donner[8] called attention to the rapid absorption of boric acid from denuded areas such as burns.

The following quotations from recent editions of three widely used textbooks on pharmacology indicate the fallacy of depending on boric acid to act as a bactericide or a significant bacteriostatic:

Sollmann,[9] speaking of boric acid and sodium borate (borax), says "These are fairly antiseptic, but not potently germicidal, and it is questionable whether they check bacteria under clinical conditions. They are not deleterious locally or systemically in the amounts ordinarily used, but larger doses are fatal."

Elsewhere Sollmann says "Death may result from the ingestion of 15 to 30 Gm. of borax or 2 to 5 Gm. of boric acid. This has occurred by intravenous injection of boric acid solution in mistake for saline or by similar mistakes in infant feeding. It may arise from local administration (van Dort Krom, 1906); especially from flushing cavities and from use of powdered boric acid on extensive burns (Savariaud, 1914)."

Edmunds and Gunn[10] state that "boracic acid and its sodium salt have some antiseptic power, for in 2.5 per cent solution almost all forms of bacilli stop growing; but they are not destroyed, even the delicate anthrax bacilli being found capable of further growth after exposure to a 4 per cent solution for twenty-four hours. Boracic acid is therefore valueless as a disinfectant but has been used as an antiseptic dressing; it has the advantage over many other antiseptics of inducing very little irritation and of being only slightly poisonous, but experience has shown that it cannot be used with impunity in very large quantities. . . . Chemical examination of the organs in cases of fatal poisoning has shown that the largest amount of boracic acid is stored in the brain, which in turn is followed closely by the liver."

Goodman and Gilman[11] state that "boric acid is a very weak germicide, and certain organisms such as Staphlyococcus aureus are not killed by long exposure to a saturated aqueous solution. However, aqueous solutions are effective in inhibiting bacterial growth. . . . Although it is not very toxic, serious poisoning can result from the ingestion of 5 Gm. of boric acid."

SUMMARY

A case of fatal boric acid poisoning following use of boric ointment U. S. P. in eczema was observed. Use of boric acid preparations should be discouraged because of their limited usefulness and the real dangers of their accidental and intentional use. The medical profession as a whole probably puts unwarranted confidence in boric acid preparations and is likely to forget that boric acid is a poison.

6. For the method of determining boric acid in urine or spinal fluid see Kahlenberg, L., and Barwasser, N.: J. Biol. Chem. **79:** 405 (Oct.) 1928. Kahlenberg, L., ibid. **62:** 149 (Nov.) 1924.

7. Lembcke, P. A.; Quinlivan, J. J., and Orchard, N. G.: Epidemic Diarrhea of Newborn, Am. J. Pub. Health **33:** 1263, 1943.

8. Rubin, J., and Donner, G.: Tödliche Vergiftung mit Kaliumpermanganat in Substanz, Deutsche Arch. f. klin. Med. **98:** 267, 1909.

9. Sollmann, Torald: A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1942.

10. Cushny, A. R.: Pharmacology and Therapeutics, revised by C. W. Edmunds and J. A. Gunn, Philadelphia, Lea & Febiger, 1940.

11. Goodman, L., and Gilman, A.: The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1941.

Magendie.—Magendie's life also illustrates some of the qualities peculiar to men of science in any country—universal curiosity, tenacity of purpose, unceasing industry, willingness to admit error—and in addition he exhibited personal qualities of restlessness and a certain impetuousness which sometimes brought him into conflict with his contemporaries. These, after all, are human qualities which one somehow expects in men of commanding genius.—Olmsted, J. M. D.: François Magendie, New York, Schuman's, 1944.

PAROXYSMAL TEMPORAL HEADACHE

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NEW ORLEANS

Within the past year I have treated 8 cases of headache so closely related from the standpoints of clinical manifestations and therapeutic response that a report seems warranted.

The characteristic picture was one of periodic attacks of throbbing pain in the right, left or both temporal regions radiating to the frontoparietal and postauricular areas. Although throbbing pain predominated and was frequently "unbearable," it was usually superimposed on a dull, constant ache in the involved parts. Attacks ranged in frequency from once a month to several times a week over a period of months or years, usually recurred in the same region (right or left temporal) and lasted from several hours to several days. Onset was abrupt, appeared any time during the day and was apparently unrelated to physical exertion or emotional tension.

Gastrointestinal manifestations were common but tended to accompany the headache rather than precede it. Scotomas, dizziness, facial flushing and rhinorrhea did not occur. Sensitivity to histamine by skin test was demonstrated in only 1 case.

Digital compression of the temporal artery on the affected side abolished the throbbing pain and most of the continuous dull ache. The point at which digital compression afforded maximum relief was located; the tissue about the segment of artery underlying the palpating finger was infiltrated with 2 cc. of 1 per cent procaine hydrochloride. This procedure effected complete disappearance of the throbbing and almost complete cessation of the dull aching pain. Periarterial infiltration with 2 cc. of isotonic solution of sodium chloride used as a control in all cases invariably failed to alleviate distress.

Relief was frequently obtained within one minute after periarterial block with procaine hydrochloride and lasted from several hours to several days. In the latter instance it is probable that the attacks were aborted rather than relieved by prolonged anesthetization.

Of the 8 patients, 5 with frequently recurring headache obtained complete remission following arterial section. Patients were followed postoperatively from two to eleven months. A general anesthetic was used in 3 instances and a local in 2. Arterial biopsy in 3 cases disclosed no abnormal changes in the vascular walls. Three patients whose attacks occurred less frequently preferred repeated block with procaine hydrochloride to surgical intervention.

REPORT OF CASES

CASE 1.—B. W., a white woman aged 21, single, referred by Dr. C. H. Weinberg on May 15, 1944, had been incapacitated by periodic headaches occurring two or three times a month to such an extent that for three years she had been unable to retain steady employment. The headaches were almost entirely limited to the temporal and parietal regions on the right side and were characterized primarily by a dull ache with exacerbations of sharp, shooting, throbbing pain lasting several hours. The duration of the attacks was from two to five days. Nausea occurred frequently, but there were no visual disturbances. During attacks the patient occasionally experienced a sensation of warmth on the involved side. At first the headaches usually appeared about the time of the menstrual period but during the past year and a half occurred at any time.

Physical examination yielded essentially negative results. Routine laboratory studies failed to reveal any abnormality. The result of the skin test for histamine sensitivity was negative.

When first seen the patient had a headache of one week's duration. Pressure over the right temporal artery immediately obliterated the throbbing pain, leaving only a slight dull headache in the temporoparietal region. Periarterial infiltration with procaine hydrochloride completely relieved the pain for twelve hours, after which throbbing in the right temporal region recurred. Periarterial infiltration with saline solution had no ameliorative effect; infiltration with 2 cc. of 1 per cent procaine hydrochloride produced arrest of the pounding headache.

Ligation and section of the temporal artery performed by Dr. Sidney Copland on May 19 resulted in disappearance of the headaches to date.

CASE 2.—J. R. C., a white man aged 55, referred by Dr. Gilbert Anderson, had suffered from temporal headaches about two or three times a month for one year. Seizures lasted several hours and were readily abated by various "headache remedies." There were no other associated symptoms.

One such severe bilateral throbbing headache occurred on April 17, 1944; its intensity did not diminish during the next ten days, and the patient had not been able to sleep for several days. Nausea and vomiting complicated the picture. When seen in consultation on April 27 he was in obvious pain, restless, dehydrated and exhausted. He reiterated the statement "The headache is driving me crazy." Pain was located chiefly in the temporal region but radiated into the frontal, parietal and posterior auricular portions.

Physical examination disclosed nothing of importance; the blood pressure was within normal limits, the temporal arteries were tortuous, and visible pulsations were readily detected. Digital compression to obliterate the pulsation allayed throbbing on the affected side. Bilateral infiltration with procaine hydrochloride relieved all pain, but a mild, dull residual headache remained. The patient promptly fell asleep.

Cephalalgia gradually returned during the succeeding hours and reached its former peak intensity in twenty-eight hours, at which time saline infiltration failed to produce relief. Bilateral block with procaine hydrochloride again effected subsidence of the throbbing pain. Ligation and section of both temporal arteries was done by Dr. Gilbert Anderson on April 20, and the patient has been free from symptoms since that time.

CASE 3.—M. B., a white man aged 36, seen on Sept. 3, 1944, complained of periodic headaches for the past two and one-half years. They occurred chiefly on the right side, were throbbing in character and ranged in frequency from three to five attacks a month. On September 6 the patient was seen during a typical seizure and obtained relief from digital compression and periarterial infiltration with procaine hydrochloride. A subsequent attack three days later was again mitigated by the same procedure. On September 6 ligation and section of the right temporal artery was done; the patient has had no headaches since that time.

CASE 4.—B. R., a white woman aged 42, married, seen on Sept. 16, 1944, complained of a throbbing headache in the right temporal region occurring six to eight times a month for the last two years. Beneficial response was obtained from periarterial infiltration with procaine hydrochloride. Ten days later another attack again responded to periarterial infiltration, but the pain recurred about two hours after injection. The patient has had no headache since ligation and section of the right temporal artery, performed on Sept. 28, 1944.

CASE 5.—G. A., a white woman aged 27, married, consulted me on Jan. 15, 1945 because of right temporal headaches occurring ten or twelve times a month for a period of approximately three years. The attacks lasted from several hours to several days and were associated with nausea and vomiting. There were no other noteworthy symptoms. From time to time ergotamine tartrate had been used successfully.

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The patient was seen during a characteristic attack on January 17 and responded promptly to digital compression and periarterial infiltration with procaine hydrochloride. On February 8 the patient appeared again for relief of a typical right temporal headache; alleviation was again secured by periarterial infiltration with procaine hydrochloride. Dr. Sidney Copland performed ligation and section of the right temporal artery on February 15, and cephalalgia has not occurred since that time.

In a study on the mechanism of migraine, Graham and Wolff [1] reported highly significant observations on 16 patients. They discovered a close relationship between the amplitude of pulsations in the extracranial arteries and the intensity of the headache. Reduction in the amplitude of pulsations in the temporal artery (during an attack) by the administration of ergotamine tartrate or by digital compression diminished or abolished the headache. In 4 patients the pain was limited to the distribution of the temporal and occipital arteries and could be completely abolished by digital pressure sufficient to obliterate arterial pulsation.

Other branches of the external carotid artery may be involved. Dickerson [2] pointed out that in certain cases the migraine could be abolished by ligation and section of the middle meningeal artery on the affected side. Patzer, Derbes and Engelhardt have obtained relief in certain cases of migraine by periarterial infiltration with eucupine and procaine hydrochloride.[3]

Six of the 8 cases in this series had previously been diagnosed as "migraine" on the basis of periodic attacks of intense hemicranial cephalalgia, accompanied by nausea and occasionally by vomiting. It is not surprising that none of the patients had visual disturbances, since the end-organ artery was extracranial. Cases of "migraine" involving arteries other than the temporals have been omitted from this series.

Selection of cases of paroxysmal temporal headache was made on the basis of a typical history of periodic throbbing headache limited to the distribution of the temporal artery and its main branches, with relief by digital compression of the artery and by periarterial infiltration with procaine hydrochloride. In order to test adequately the criteria for selection the patient should be seen at the peak of an attack. If relief is obtained on two or more occasions by infiltration with procaine hydrochloride (with control saline injections) ligation and section of the affected temporal artery seems justified. Injection with procaine hydrochloride between attacks is ineffectual. The results reported in this paper seem to indicate that this particularly distressing headache is amenable to surgical intervention, with the possibility of prolonged or permanent cure. There is no evidence to date (two to eleven months postoperatively) that the factor or factors inducing segmental arterial dilatation in the surgical cases are predisposed to affect other extracranial vessels of these patients.

SUMMARY

Operative intervention has been successful in the abolition of paroxysmal temporal headache in 8 cases for the observed period of two to eleven months postoperativly. Cases of "migraine" satisfying the criteria may benefit from operation.

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2. Dickerson, D. G.: Surgical Relief of the Headache of Migraine, J. Nerv. & Ment. Dis. **77**: 42, 1933.
3. Patzer, R.; Derbes, Vincent, and Engelhardt, H. T.: Personal communication to the author.

RECENT FRACTURES OF THE CARPAL SCAPHOID

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Fractures of the carpal scaphoid offer a great challenge to the surgeon, for on his skill in diagnosis and treatment rests the ultimate functional result. The treatment of recent fractures of this type is almost a solved problem, as shown by the many studies of end results in the last few years. But too many surgeons fail, either because they are not vigilant in noting and following the most minute details in diagnosis and treatment, or because they experiment with methods which are not founded on sound anatomic principles.

DIAGNOSIS

This fracture must be diagnosed immediately after the injury, and failure to do so is one of the main causes of nonunion. A note of warning must be given about diagnosis of so-called severe sprain of the wrist, too often made because of negative roentgenograms, and it is a good working rule to deny its existence. Injuries to the semilunar or scaphoid often simulate this condition and thus fail to be recognized, and since precious days are allowed to pass without the instituting

Fig. 1.—Experimentally produced fracture of the carpal scaphoid in a cadaver. A wire has been threaded through the flexor pollicis longus tendon. These views show the intimate relationship of this tendon to the scaphoid, particularly to the area of the tubercle. In these specimens any movement of the interphalangeal joint of the thumb produces a definite change of position of the fractured fragments. The tendon passes beneath the transverse carpal ligament and entering the osseoaponeurotic canal, of which the scaphoid is a wall, then passes distally to be inserted in the distal phalanx of the thumb. Note that in the anteroposterior view the fracture is not visible, whereas in the oblique view it is readily seen.

of correct treatment the surgeon's oversight may be, to the patient, an economic catastrophe.

A history of a fall on the outstretched hand, tenderness in the anatomic snuffbox and pain there on percussion of the fully extended thumb should be almost conclusive evidence. Should the initial x-ray fail to show the fracture, the clinical findings should be used as presumptive evidence, and the only course to be followed is immobilization of the wrist for a period of three weeks. After this, should radiographic studies again be negative, the patient's ligamentous injury will have been helped by rest, and if, as so often happens, the films show a bone injury, he is already started in the proper path of healing.

Certain precautions in taking the x-rays are desirable. For careful comparison with the uninjured wrist, lateral views should be taken with the two wrists in the same position, and this can best be attained by putting the palms together with the fingers pointing forward in a "praying position." The posteroanterior views must always be taken in complete ulnar flexion, as in this position the long axis of the scaphoid is visible; and at

least two obliques are needed to complete the study, with the palmar and dorsal surfaces of the wrist alternately next to the plate. Not only should the most minimal fractures be searched for, but the surgeon must also be alert for any slight malposition of the fragments. As in other fractures, careful anatomic reduction is important, although in this injury it is frequently neglected because of the difficulties in interpreting the lateral films. Of certain clinical varieties of scaphoid fracture which may occur, an infrequent but easily treated type is an extra-articular fracture involving the tubercle. The most common injury is a fracture of the body, which may be linear or may show some displacement or angulation. Occasionally severely comminuted fractures are encountered; but these are more commonly associated with other carpal injuries. Fractures involving a small part of the proximal pole should be differentiated, because in this type the blood supply is poorest and the prognosis therefore is least favorable. The excellent work of Obletz and Halbstein [1] on the blood supply of the carpal scaphoid showed that there was considerable variation in the distribution of the arterioles but that the majority of these were located distally and the fractures through the waist of the bone could interrupt the blood supply in about one third of the cases.

Fig. 2.—Axial view of the wrist taken in full dorsiflexion. This shows well the volar osseoaponeurotic canal. The wire threaded through the tendon of the flexor pollicis longus is shown to be in intimate contact with the scaphoid.

A large number of patients sustain this fracture by falling on the outstretched hand with the wrist in dorsiflexion. The force strikes the heel of the hand and is transmitted to the scaphoid, which may break over the radial styloid. But there is another mechanism of injury which may explain the close association of this injury with luxation of the semilunar. The scaphoid acts as a bone bridge across the junction of the proximal and distal carpal rows, so that any abnormal motion taking place between the semilunar and os magnum is checked by the scaphoid, and, as the force increases, the scaphoid must either break its body or tear the intra-articular ligaments attaching it to the semilunar, producing the not infrequent rotational shift without fracture. This second mechanism is well illustrated by the so-called perilunar dislocation of the wrist with scaphoid fracture.

1. Obletz, B. E., and Halbstein, B. M.: J. Bone & Joint Surg. **20**: 424-428, 1938.

TREATMENT

In 1928 I reported a method of treatment of fractures of the carpal scaphoid which has now had ample trial, and its efficacy has been proved by a large number of reports by various workers.[2] Because at times certain phases of this method have been misinterpreted, and because certain slight improvements in technic have been acquired, it is believed that a detailed description of the present status of the method is indicated.

Treatment of each type of fracture must be individualized. Fracture of the tubercle offers little difficulty, since the bone in this area is covered by periosteum and is well vascularized. This is a rare lesion and usually of isolated occurrence. Full healing should take place in three to four weeks by simple immobilization of the wrist.

In treatment of fractures through the body, the first step should be to determine accurately whether any displacement is present. The lateral film should be carefully studied for angulation. In the presence of displacement, reduction can be obtained by traction on the thumb while the snuffbox is molded by the surgeon's fingers. Once alinement has been attained, the fragments can be impacted and properly immobilized by placing the wrist in full radial flexion with 20 to 30 degrees dorsiflexion and pressing the base of the thumb just below its proximal crease into full abduction. Technically it is preferable to perform this movement by placing the heel of the operator's hand on the same area of the patient's hand as demonstrated in figure 3. By this method full abduction of the thumb metacarpal is attained while the metacarpophalangeal and interphalangeal joints are allowed to remain in flexion, which is important because this position allows function to return more rapidly when immobilization is discontinued. It is imperative that ulnar flexion should be avoided, because in this position the scaphoid leaves its facet in the articular surface of the radius and moves

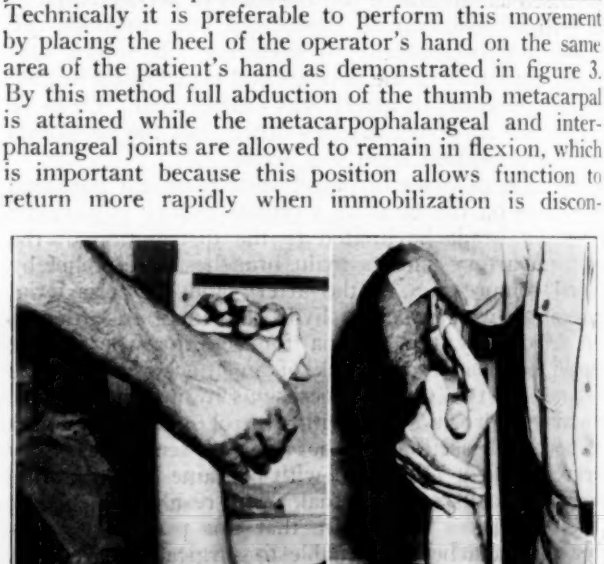

Fig. 3.—Two views illustrating maneuver for manipulating the wrist into correct position of full radial flexion, 20 to 30 degrees dorsiflexion of the wrist with the base of the thumb in full abduction but its metacarpophalangeal and interphalangeal joints relaxed in slight flexion, the heel of the physician's hand pressing against the heel of the patient's hand.

2. Soto-Hall, R., and Haldeman, K. O.: J. Bone & Joint Surg. **16**: 822-828, 1934; **23**: 841-850, 1941. Janes, J. N., and Russel, J.: Study of 57 Cases at R. A. F. Hospital, Rauceby, England, personal communication to the author. Obletz, Benjamin: Surg., Gynec. & Obst. **78**: 83-90, 1944. Dickison, J. C., and Shannon, J. G., ibid. **79**: 225-239, 1944. Meekison, D. M.: J. Bone & Joint Surg. **27**: 80-85, 1945

distally and radialward, the fractured surface tending to separate because the proximal fragment remains attached to the semilunar by the interosseous ligaments. On the other hand, in radial flexion the fragments closely approximate, especially when abduction of the thumb is added to this position. This can be readily

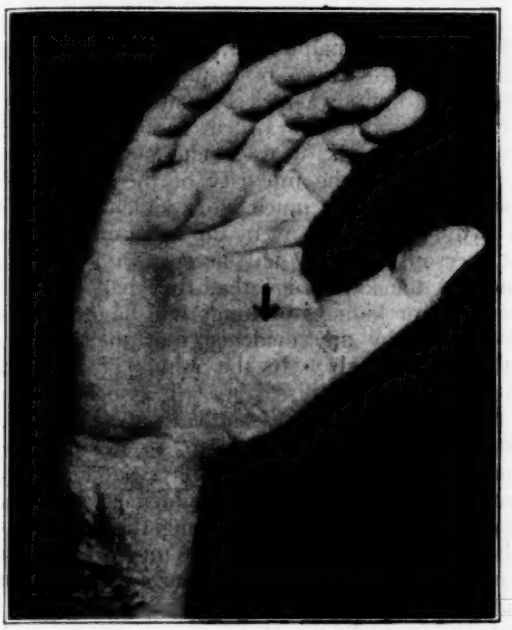

Fig. 4.—Arrow points to proper site of pressure and correct position of the hand, wrist and thumb.

demonstrated by producing experimental fractures in cadavers or by roentgenographic studies in the living.

In the anterosposterior plane, dorsiflexion at 30 to 40 degrees has been experimentally proved by Berlin [3] to be an ideal position. Warning must be given about the use of too much dorsiflexion, because this may lead to anterior angulation of the fracture with eventual malunion.

Proper immobilization of the thumb is important for several reasons:

1. By its inclusion more complete fixation of the wrist can be attained.

2. Any active movement of the thumb involves the long flexor tendon and the abductor pollicis. The latter often originates in the tuberosity of the scaphoid, so that abduction of the digit produces motion in the distal fragment. The close relationship of the long flexor to the scaphoid can be shown by noting its anatomic position and by noting movements in experimentally produced fractures, when it can be shown that motion of the interphalangeal joint alters the relation of the fracture surface (figs. 1 and 2). Further confirmation can be obtained by asking the patient with recent fracture to flex actively the interphalangeal joint; this movement will produce severe pain.

3. Correct immobilization of the thumb avoids disability because, in application of the cast, care must be taken to force the thumb into abduction at its base rather than at its tip, since the latter procedure leads either to strain or to subluxation of the metacarpophalangeal joint. In this strained position recovery of function takes place much more slowly. The metacarpal, therefore, should be abducted, and the thumb should be relaxed in slight flexion (figs. 3 and 4).

3. Berlin, David: New England J. Med. **201**: 574-579, 1929.

TECHNIC OF PLASTER SPLINT

An anterior skin-tight plaster splint is first applied, and then one layer of circular flannel bandage is wrapped around the extremity. This is followed by a circular plaster splint. It is important that the plaster be carried as close to the elbow as possible and still allow full flexion of this joint, and, as previously mentioned, the plaster should extend to the middle of the thumb nail and to the metacarpophalangeal joint of the fingers. Mobilization of this area in scaphoid fractures will not produce the stiffness one always notes following Colles' fractures.

PERIOD OF IMMOBILIZATION

Early and rapid healing will take place in fractures of the tubercle of the scaphoid. In this infrequent extra-articular fracture, position of the wrist is not of consequence. On the other hand, fracture through the waist is the most common, and in this type correct and adequate immobilization is very important. Immobilization should be complete and undisturbed for at least nine to ten weeks; a large percentage of fractures will heal in this time, but four to five weeks longer may be necessary. Roentgenograms and clinical examinations should determine whether this further immobilization is

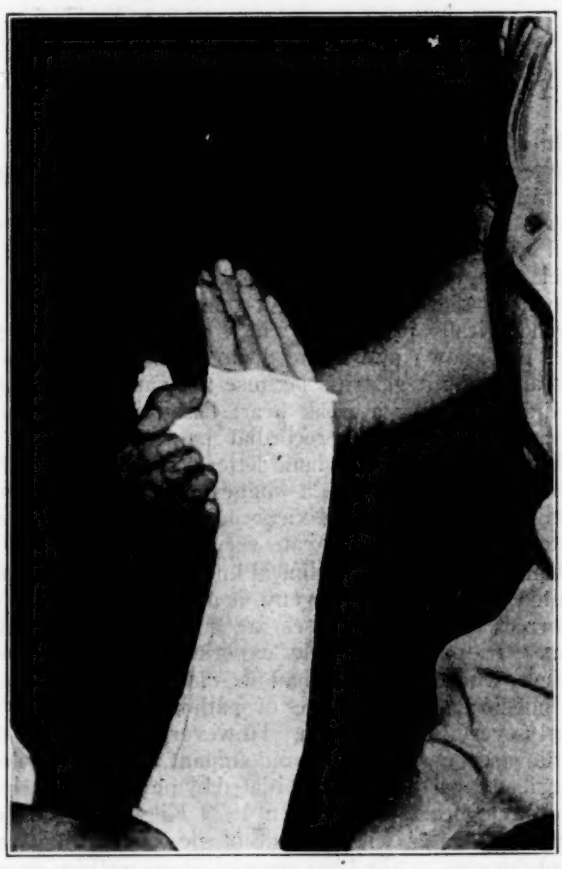

Fig. 5.—Method of holding hand while plaster is drying. Note that splint is carried to the metacarpophalangeal joints of the fingers and to the level of the middle of the thumb nail. No pressure is put on the tip of the thumb.

desirable. The presence of local tenderness in the anatomic snuffbox, or pain on percussion on the tip of the thumb, associated with inconclusive radiologic evidence of union, should warrant further immobilization. Sometimes the clinical evidence of union will appear before it is demonstrated in the x-ray.

Certain authors have recommended prolonged immobilization, sometimes as long as twelve to eighteen months. I do not concur with this policy, because 95 per cent of cases will have united in four to five months and when union is delayed beyond that time there are certain complications which should be treated surgically rather than by further splinting. These are malposition of the fractures, interposition of strong fibrous bands, aseptic necrosis or an uncontrolled very small fracture of the proximal pole. In the latter injury, in which only the sixth or seventh body of the scaphoid is involved, an excision of the small fragment, if three months' splinting fails, results in better function than very prolonged immobilization.

When fractures of the scaphoid are associated with luxation of the semilunar, which occurs in about 12 per cent of the cases, the wrist must of necessity be held in slight volar flexion for the first four weeks. If it is placed in dorsiflexion in order to treat the scaphoid fracture, the semilunar may redislocate.

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IATRÓGENIC HEART DISEASE

A COMMON CARDIAC NEUROSIS

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AND
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SAN FRANCISCO

In a recent publication Gillespie [1] said "There is a chapter omitted from medical textbooks which might be headed 'Iatrogenic (Gr. iatros, doctor) Diseases'; that is to say, diseases produced by doctors. It is not well enough realized that it is dangerous to give a label to a set of symptoms of disease until you are convinced that it is the right one. If a syndrome is psychologically produced (which of course the patient does not know) and if the doctor also does not know this and calls it gastritis because the patient complains of indigestion, or a weak heart because he complains of breathlessness or precordial pain, or even if he attaches to it some cabalistic letters, such as D. A. H., then he has implanted a suggestion in the patient's mind which fixes his anxiety in a way which, if not quite indelible, is at any rate very hard to undo."

While the advance of clinical knowledge has definitely limited the scope of iatrogeny, it must be admitted that incorrect medical diagnoses are still far from uncommon. In our psychiatric experience we have seen patients whose symptoms had been incorrectly diagnosed by physicians as evidence of pathologic processes in nearly every bodily system. However, one system—the cardiovascular—has been predominant. In 1926 Viko [2] described cardiac neuroses initiated by physicians in cases of organic heart disease. In 1929 Kilgore [3] described cardiac neuroses with no pathologic findings initiated by physicians. Oille [4] has summed it up well by stating that almost 60 per cent of patients who consult a cardiac specialist are suffering from either an exaggerated or a wholly unnecessary anxiety about their hearts, arising from suggestion and not based on reason, most of the suggestions following the careless or ill considered remarks of doctors.

From time immemorial the heart has been the traditional seat of the emotions and hence acts as the focal point of anxiety. The anxiety neurosis in its varying degrees, according to Weiss,[5] is probably the most frequent disorder of civilized life. It has long been known that anxiety attacks produce disturbances of cardiac function such as palpitation, arrhythmia and tachycardia, also disturbances of respiration and other body systems, yet not always accompanied by recognizable anxiety. The presence of cardiac symptoms directs attention toward the heart. The psychic reaction to doubt concerning the integrity of the heart, Conner [6] has said, seems to be much more violent and profound than is the case with any of the other internal organs. Most persons who would accept with considerable equanimity the knowledge that they had some disease of the liver or kidneys or lungs will have their morale sadly shaken by any evidence that the heart is not functioning properly. In the minds of most laymen the thought of heart disease is still associated with the idea of sudden and unforeseen death. We are reporting some cases from our records to show how errors of commission or omission by the physician have resulted in patients with varying degrees of incapacity and disability, owing to concern regarding their hearts. It is our hope that an awareness by the medical profession of this condition will lead to more careful management of predisposed individuals and great savings in time, money and mental anguish.

Conner has outlined the four groups of causes which may act as the precipitating events for the development of cardiac neurosis: (1) the statement of some physician or life insurance examiner that the heart shows some abnormality, (2) the occurrence of some dramatic case of heart disease (such as sudden death) among relatives or friends of the patient, (3) the appearance of symptoms calling attention to the heart, such as sudden pain or a skipped beat, and (4) some profound and protracted emotional disturbance, such as deep grief or prolonged anxiety. Oille has described these patients as sensitive or suggestible with a past or family history of nervous excitability. They usually have a pessimistic type of mind; that is, they take a serious view of their symptoms or what people tell them and are unable to forget or disregard unfavorable remarks as can optimistic persons. The majority of this anxiety group is made up of people who have a pain somewhere which they think is in their hearts or due to their hearts.

We are presenting a few cases from our series of cardiac neuroses to show how often the physician himself has had an important role in the initiation of the illness. For this reason we are confining ourselves to such cases and ignoring others in which family pressures or illnesses or other environmental influences have played the predominant role.

REPORT OF CASES

CASE 1.—A divorced woman aged 28 was referred for psychiatric study of her "heart attacks" after careful medical and laboratory examination had revealed no cardiac pathologic change. The "heart attacks" had begun at the age of 19 years and continued up to the time of study. They consisted of severe, constricting retrosternal pain passing up to the left

From the Langley Porter Clinic, University of California Medical School.

1. Gillespie, R. D.: Psychological Medicine and the Family Doctor, Brit. M. J. **2**: 263, 1944.
2. Viko, L. E.: Cardiac Neurosis Associated with Rheumatic Valvular Heart Disease, Am. Heart J. **1**: 539, 1926.
3. Kilgore, E. S.: The Nervous Heart, Am. Heart J. **5**: 9, 1929.
4. Oille, J. A.: Cardiac Neuroses, Canad. M. A. J. **45**: 1, 1941.
5. Weiss, E.: Anxiety and the Heart, Clinics **1**: 916, 1942. Weiss, E., and English, S. O.: Psychosomatic Medicine, Philadelphia, W. B. Saunders Company, 1943.
6. Conner, L. A.: Psychic Factor in Cardiac Disorders, J. A. M. A. **94**: 447 (Feb. 15) 1930.

shoulder, palpitation, difficulty in breathing and numbness in both arms, more pronounced on the left. The attacks would last several minutes and occurred at rest or on exertion. The patient had seen many doctors, some of whom had diagnosed heart disease and had prescribed digitalis and other cardiac medications as well as vitamins and sedatives. Between attacks the patient was symptom free and able to lead a normal, vigorous life.

Psychiatric study revealed that the patient had been attached to her father until the age of 16. At this time, when she began to go out with boys, her father abruptly accused her of having syphilis and forced her to have a medical examination, which was negative. She was terribly upset by this experience and torn between love and resentment toward her father. She left home and, despite her father's entreaties, did not return to see him. Several years later her father died suddenly following a heart attack. This was a shock to the patient, accentuated by the death of her fiancé in a car accident a week later. It was following this she had her initial attacks of retrosternal pain, breathlessness and palpitation. The family doctor examining her thought that she might have "a leaking heart" and put her to bed. Hearing the doctor's words, the patient thought of her father's cardiac death and felt such would be her fate. Under emotional stress she had recurrent attacks, which several doctors diagnosed as "heart disease" even in the absence of objective findings. One thought her tonsils responsible and recommended their removal. In view of this, when several physicians told her that she had a "nervous heart" and "there was nothing wrong," she "felt they were crazy."

The patient married but had a great fear of sexual relations and pregnancy because a sister had died of postpartum infection. Since a "heart attack" would preclude sexual activity, she found this a useful device repeatedly. After five years of marriage with recurrent separations, she divorced her husband and came to California. She began to work and got along very well until she began an affair with a man, and her "attacks" recurred. The local doctor treated her for one year and finally referred her for further study.

The physical and electrocardiographic examinations were negative. Since the patient appeared tense and nervous, sighing frequently, she was overbreathed for one minute, reproducing in all details her "heart attack." The patient immediately recognized her symptoms and their method of production. After a series of psychiatric interviews, she married her friend and has remained symptom free since that time.

CASE 2.—A married woman aged 30 was referred for anxiety regarding her heart following the birth of a child. Physical examination and laboratory examination had shown no cardiac pathologic change. Reviewing her life history, it was found that at the age of 20, while undergoing a routine medical examination, she was told that she had "an enlarged heart." The doctor also recommended that she "tell her husband" when she married, which she interpreted to mean that she should not have children. From this time on she was troubled by palpitation and breathlessness, which one doctor told her was "pseudoangina."

She married and managed quite well, although there was constant discord between her husband and her mother, all living in the same home. When she became pregnant she worried excessively about her heart, and a physician, attempting to reassure her, jokingly said "We never worry about the heart during pregnancy but only after the baby is born." Consequently, immediately following the birth of the child she was troubled by the recurrence of her symptoms with accentuated intensity and a profound conviction that her heart would stop. Repeated medical examination and reassurance could not dissuade her.

Psychiatric discussions unearthed the sources of conflict with the mother and the husband. When she had gained insight regarding the home situation, the patient and husband moved away from the mother's home. The significance of her cardiac symptoms was explained; the interpersonal relationship between husband and wife clarified. She has continued well and free from anxiety since completion of the treatment.

CASE 3.—A man aged 25, complaining of attacks of precordial pain and shortness of breath for two years, was seen for psychiatric study. At the age of 12 years he had been told by his family physician that masturbation would lead to sexual debility and heart disease in later life. His "heart attacks" had begun two years previously at the time he became engaged. Despite repeated medical and laboratory examinations, he was convinced he had "heart disease." The attacks frequently came on at night while asleep, awakening him and forcing him to sit up and gasp for breath. With psychiatric study it was found that erotic dreams precipitated these attacks. Overbreathing for sixty seconds, the patient would produce an attack. When the mechanism of the attacks was explained and the original sexual fears due to masturbation were discussed, definite improvement ensued.

CASE 4.—A man aged 34, a butcher, was seen for complaints of pain over the heart and extreme nervousness. At the age of 19 his family doctor told him that he had "athlete's heart" and instructed him to "take it easy." However, repeated medical examination since that time had shown no pathologic condition. Psychiatric study showed that he had always been under the domination of an aggressive mother. To escape her he had married at 18 years of age to find that his wife had the same personality makeup as his mother. His feeling of being trapped and frustrated in this situation gave rise to anxiety symptoms, incorrectly diagnosed by the physician as being of cardiac origin. After finding out the factors underlying his symptoms, the patient decided that his marriage would never work. Since separation from his wife there has been a decided improvement in his condition.

COMMENT

Kilgore [7] has stated that the physical signs often responsible for mistaken diagnoses of cardiovascular disease are benign murmurs and arrhythmias, simple tachycardia and temporary elevation of blood pressure from the excitement of a medical examination. The symptoms giving rise to error are those designated as neurocirculatory asthenia and effort syndrome. Summing it up, he feels that the disability of masquerade heart disease is almost always due to fear which usually comes from suggestion. The readiness of physicians to diagnose heart disease on the basis of an audible murmur is responsible for many cases of cardiac neurosis. He has said that a systolic murmur can be found in a considerable proportion of healthy young adults if they are examined in various postures, in different phases of respiration, before and after exercise. In the absence of supporting findings or history they should not be regarded as pathologic, the diagnosis of valvular disease being held in abeyance until radiographic and electrocardiographic studies have been made. Repeatedly, our patients have been told by their physicians that they had "a murmur" or "a leaking valve" or "a leaking heart" with no investigation beyond auscultation of the heart. Patient 1 was told that she had "a leaking heart," and when in later examinations some physicians told her that her heart was normal she "thought they were crazy."

Another error is that of some physicians who tell patients that they have "functional heart disease," "nervous heart" or "pseudoangina." As far as the patient is concerned, the physician is diagnosing a form of heart disease. If it was explained that the cardiac symptoms are due to nervousness but not due to any actual heart disease, such misunderstandings would not arise. Similarly, the use of diagnoses such as "athlete's heart" or "effort syndrome" imply to the patient that an actual disease entity is present.

7. Kilgore, E. S.: The Heart in Military Service, J. A. M. A. **117**: 258 (July 26) 1941.

There is a tendency to recommend rest in bed as a general measure in patients exhibiting anxiety tension symptoms with resultant exaggeration and fixation of symptoms. In patients with anxiety about their heart the doctor's advice to rest in bed or "take it easy" confirms their worst fears. We have had many of these patients who as children or adolescents were ordered to bed following a "nervous breakdown." One patient, a woman aged 32, was told by her physician at the age of 14 years that rest was essential for the remainder of her life: "Never run when you can walk, never exert yourself unless it is necessary." The disastrous effects on the patient's subsequent life can be readily imagined and had nearly wrecked her marriage by the time she came under psychiatric care.

Next to preoccupation about the heart there is universal concern about blood pressure. The layman's ideas about blood pressure, accentuated by the impressive apparatus and technic, have given it an air of portentous meaning. Nearly every patient is anxious as to the results of this examination and places much importance on it. The glib use of the phrase "high blood pressure" or "low blood pressure" by the examining physician, without any careful explanation of its significance, may be the focal point of an anxiety state. It is indeed surprising to find the number of neurasthenic or depressed patients whose condition was ascribed to low blood pressure, if their blood pressure determinations tended to be in the lower ranges of normal variation. Similarly, many patients showing a slight elevation in pressure are told that their pressure is increased, even though the anxiety accompanying such examination is well known and might in itself be the cause of the elevation.

Even reliance on the electrocardiogram as a diagnostic aid may be a source of error. It has been shown that the anxiety tension states classed as the hyperventilation syndrome may show electrocardiographic changes which could lead the unsuspecting physician to diagnose heart disease.[8] An awareness of the possible changes due to hyperventilation would obviate such a possibility. Recently a married woman aged 21 was seen in the outpatient department of the University of California Hospital complaining of precordial pain and breathlessness for which no organic pathologic condition could be found. An electrocardiographic record showed changes suggesting heart disease. However, the examining physician felt that a hyperventilation syndrome might account for the whole clinical picture. He was able to reproduce the entire symptomatology by the hyperventilation test. Psychiatric study revealed marital discord plus guilt feelings regarding a premarital sexual escapade. Fortunately he recognized the picture and so avoided the initiation of a cardiac neurosis.

At times the doctor, anxious to have a patient carry out his orders or submit to an operation, will unduly stress possible untoward effects if these measures are not followed through. While it is justifiable to mention that heart disease may be a possible consequence of neglected, diseased tonsils or sinuses or other toxic foci, it is unfair to imply that it is an invariable result of continued neglect. One patient was told, at the age of 15, that unless his "diseased tonsils" were removed he would be dead of heart disease in five years. He is still alive and healthy at the age of 30, still with the same infected tonsils—but with a cardiac neurosis.

Again, the indiscriminate use of medications in the anxious patient all too often have a deleterious effect. Digitalis is made use of because the physician feels that in small doses it can do no harm and might do some good if, by chance, any slight heart disease should be present. Since most patients learn sooner or later that digitalis is a specific cardiac medication, they assume that they are being treated for heart disease. Frequently other cardiac drugs are used. At times the patient misconstrues his sedative mixtures as being specific cardiac drugs. In fact, the use of any medications or even placebos may lead to misconceptions unless their purpose is explained.

It cannot be too strongly emphasized that, since cardiac symptoms may occur in neuroses of all types and even in psychoses, they are only the presenting symptoms of a more fundamental disorder—the individual's inability to handle his personal and environmental problems. The physician, limiting his attention to the cardiac symptoms, permits the major personality disorder to escape unnoticed and helps to fix the anxiety at a somatic level.

While anxiety cases showing cardiac symptoms are less frequent in the present struggle compared to World War I, they still are common and present a major problem. In his Goulstonian Lectures on the effort syndrome Wood[9] pointed out that a number of the cases in his series had been induced by the doctor. The accidental finding of a systolic murmur or of tachycardia was usually the source of error. Evidence of predisposition was common. Given the suggestible subject, the doctor often succeeded in linking emotional reactions to effort by grafting on the mind of the patient the idea that his heart would not stand up to exertion. Douglas-Wilson[10] found cardiac symptoms the most common somatic manifestations in a group of psychoneurotic soldiers. The induction of symptoms by suggestion through prolonged confinement to bed or by doctors' or relatives' warnings was found in 14 of the group of 53 cases. It was noted that, whatever the reason for the patient's having been confined to bed—it varied from head injury to "nervous breakdown"—the patient himself had supposed that it was because of "something wrong with the heart." Not one of the patients that had been instructed to "take things easy" had sought further advice after the initial warning.

In addition to these cases recognized as cardiac manifestations of a psychogenic disorder there are countless numbers incorrectly diagnosed. Lewis,[11] in reviewing the studies at Hampstead from 1914 to 1918, estimated that about five sixths of the British army diagnoses of organic heart disease were erroneous. Commenting on this, Kilgore stated that in the United States services many diagnoses of mitral insufficiency, myocarditis, angina pectoris and the like were mistakenly entered in the records and carried forward as grounds for disability ratings long after the passage of years and accumulating evidence should have removed any doubt of the original diagnostic errors. Considering the great number of men incorrectly labeled as suffering from "heart disease," the extent of the iatrogenic illness so created is indeed appalling. One wonders if the same diagnostic errors are recurring in the present conflict.

8. Thompson, W. P.: The Electrocardiogram in the Hyperventilation Syndrome, Am. Heart J. **25**: 372, 1943. Barker, P. S.; Shrader, E. L., and Ronzoni, E.: The Effects of Alkalosis and of Acidosis on the Human Electrocardiogram, ibid. **17**: 169, 1939. Kerr, W. J.; Dalton, J. W., and Gliebe, P. A.: Some Physical Phenomena Associated with the Anxiety States and Their Relation to Hyperventilation, Ann. Int. Med. **11**: 961, 1937.

9. Wood, P.: Da Costa's Syndrome (or Effort Syndrome), Brit. M. J. **1**: 767, 1941.

10. Douglas-Wilson, I.: Somatic Manifestations of Psychoneurosis, Brit. M. J. **1**: 413, 1944.

11. Lewis, T.: The Soldier's Heart and the Effort Syndrome, ed. 2, London, Shaw & Sons, Ltd., 1940.

While only after postwar surveys will the answer be known, the impression is that we do not yet recognize psychogenic disorders of this type.

One of us, while serving as psychiatrist at an army induction center, was surprised to find a rather considerable number of healthy young men concerned about their having heart disease, despite the absence of any clinical findings. Repeatedly they stressed the fact that the family doctor had diagnosed heart disease and were surprised, if not actually irked, when told that their cardiac examinations were negative. While those exhibiting anxiety tension states were rejected, the great majority of these men were deemed acceptable for military service. It will be interesting to ascertain some day their later reactions to the strains of military life and service.

TREATMENT

It has been reported by many observers that the majority of patients coming to the doctor with cardiac symptoms do not have heart disease.[12] However they have anxiety about their hearts and, as a fertile field for cardiac neuroses, must be handled carefully. The physician's primary task is to reassure the patient not only through his words but through his attitude. A careful history and thorough physical examination, with laboratory aid where indicated, impresses the patient with the physician's interest and permits an acceptance of his diagnosis. Statements the doctor makes should be positive and definite and, if he is in doubt about certain points, it is best not to mention these. If heart disease is found, the doctor should frankly state the case and advise accordingly, being careful not to implant an exaggerated idea of the gravity of the condition. If he is sure the signs and symptoms do not mean heart disease, he must be equally frank and decided. When he feels the need for roentgen ray or electrocardiographic study, he must explain why and answer any questions whether expressed or not. More important than words is his attitude, since any semblance of uncertainty may nullify his reassurances. Having another doctor listen to an interesting though benign murmur or a suggestion for increased rest or even a vague recommendation to "take it easy" implies some positive finding to these suggestible individuals. When the symptoms are associated with anxiety, the doctor should briefly explain the physiologic and psychologic mechanisms responsible, so that the patient can understand the basis of his otherwise incomprehensible symptoms. To send a patient on his way with the statement that "nerves" are responsible for his difficulties is to leave him prey to many worries and unwholesome thoughts. A few simple sentences by the doctor may save months and years of anguish.

We have previously reported an overbreathing test that in many cases can reproduce the cardiac symptoms complained of by an emotionally disturbed individual.[13] The patient, while seated relaxed in a chair or comfortably lying down, is instructed to breathe deeply in and out through the mouth. He is usually asked to sigh once or twice and then told to do so very deeply at regular intervals, forcing all the supplemental air from the lungs. This is continued at a rate of 15 to 25 respirations per minute for a period of one to three minutes. To insure deep respiration with complete removal of the air and to regulate the rhythm the physician presses lightly on the lower sternum or epigastrium. In many patients this is not necessary, since the patient overbreathes satisfactorily without intervention by the doctor. The time interval from the beginning of the test to the onset of symptoms is noted. In most cases symptoms will be definitely present within sixty seconds and should be pronounced within a minute or two. If symptoms are not present after a three minute period, the test should be discontinued, provided that during the three minutes the ventilation was trebled or quadrupled. The physician must be sure that there is adequate respiratory exchange, since some patients go through the motions of deep breathing, raising and lowering their shoulders, without actually overbreathing. Rarely has it been necessary to continue the hyperventilation for fully three minutes, since the patient will request that the test be discontinued after one or two minutes, often stopping of his own accord. At this point the patient may recognize that these symptoms are those of which he has originally complained, otherwise this fact should be brought to his attention. He is told that his symptoms are not those of a physical disease but are due to emotional problems whose undischarged emotional tension causes him to sigh or overbreathe. It is explained that sighing, yawning, panting, "catching one's breath" or any other form of deep breathing all represent the same process and have the same result in their production of these symptoms of overbreathing.

In the absence of psychiatric treatment designed to uncover the psychologic mechanisms responsible, most patients will continue to have symptoms. Therefore it is important for the physician to urge the patient to live a normal life in spite of his symptoms. He is urged to return to work and to assume his regular duties, perhaps doing lighter work at first but gradually doing more with increasing improvement. A great deal of pressure by the doctor may be necessary to initiate the first steps, such as going upstairs, walking down the street or going downtown despite the presence of symptoms. It is permissible to use mild sedatives, but it must be made clear to the patient that they are given for his nervousness and not for his heart. Rest should not be prescribed unless absolutely necessary, but increasing activity should be the rule. It is questionable whether eliminating coffee and tobacco does much good. Frequently the doctor may have an idea as to the sources of psychologic upset. Adjusting marital difficulties, particularly in the sexual sphere, or recommending business or environmental changes may effect a decided improvement. Probably many patients can be handled at such a superficial level. Where the difficulties are more deep seated and do not respond to these measures, psychiatric consultation should be sought.

CONCLUSION

In emotionally disturbed individuals, cardiac disturbances are commonly the presenting symptoms of their anxiety. Often careless or ill timed remarks of the physician may initiate a cardiac neurosis. Every patient consulting a doctor for anxiety tension states, particularly those with cardiac symptoms, must be considered as potentially having a cardiac neurosis and managed accordingly. When careful physical and laboratory examinations reveal no organic findings, the patient must be told so unequivocally. Some of the sources of error in diagnosis and management have been mentioned. Recognition by the physician of the presence of underlying personality disorders in such cases will help reduce the incidence of iatrogenic disease.

12. Menninger, W. C.: Functional Cardiovascular Disorders: "Cardiac Neurosis," Southwest. Med. **21**: 281, 1937. White, P. D.: Observations on Functional Disorders of the Heart, Am. Heart J. **1**: 527, 1926.

13. Gliebe, P. A., and Auerback, A.: Sighing and Other Forms of Hyperventilation Simulating Organic Disease, J. Nerv. & Ment. Dis. **99**: 600, 1944.

DEATH FROM AIR EMBOLISM FOLLOWING INSUFFLATION DURING PREGNANCY

REPORT OF A CASE

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Insufflation has been a medical practice since early in the nineteenth century. The earliest recorded mention of it appeared in 1823. There are descriptions of its use for therapeutic and diagnostic purposes in connection with almost every opening and cavity of the body. Despite the fact that it has been used widely and frequently since then, insufflation has not been regarded as a dangerous procedure.[1]

The first reference in medical literature to insufflation of the vagina with silver picrate as an effective treatment of trichomoniasis appeared in 1936.[2] Since that time three deaths directly attributed to insufflation of the vagina during pregnancy have been reported, one from Canada [3] and two from England.[4] Attention was directed by these accounts to the dangers of the method, especially when applied during the latter part of pregnancy. One author referred to the fact that the English manufacturer of the drug "Picrotol" warns the physician against its use in these circumstances.[5]

The following death from air embolism resulting from insufflation during pregnancy is therefore the fourth from this means to be reported, and the first to be recorded in the medical literature of this country.

REPORT OF CASE

A white woman aged 21 was brought by ambulance to the St. Louis County Hospital from the office of an osteopath on Aug. 14, 1944 and pronounced dead on arrival. An inquest held by the county coroner disclosed the following facts: The decedent, a housewife and trigravida, had consulted the osteopath on August 14 at 9 p. m. because of an irritating vaginal discharge. She was admitted to the treatment room at about 9:15. Shortly thereafter the osteopath began to insufflate the vagina with silver picrate compound powder 1 per cent silver picrate in kaolin,[6] Wyeth, using a Shelanski insufflator [7] (Wyeth) fitted with a soft rubber vaginal shield. It was estimated that from one half to two thirds of the standard container (Wyeth) attached to the insufflator was filled with silver picrate powder (2 to 3 Gm.) when the treatment began. The patient was supine, with her feet elevated in stirrups, during the proceedings.

Approximately five minutes after the conclusion of the insufflation the patient sat up and asked a question. In a moment she became noticeably pale and said "I feel sick" and fell back on the examining table, suddenly inhaled deeply and emitted a peculiar sound as if she was strangling. Shortly thereafter she was dyspneic, cyanotic and unconscious, and a white froth began to exude from the mouth. The respirations were irregular and then ceased. External stimulants, epinephrine by hypodermic injection and artificial respiration were administered, but within a period of from twenty to thirty minutes after the initial symptoms appeared no heart beat could be detected. Death was recorded officially as having occurred at 10:20 p. m.

Testimony by two members of the immediate family of the decedent did not provide any relevant information with particular regard to heart disease, syncope, injury or convulsions. There was some evidence that the decedent had suffered for several days previous to her death from cramps in the region of the lower abdomen, weakness and "dizzy spells." The records of the osteopath indicated that the patient had visited him on three previous occasions since June 1944 in connection with her pregnancy, which was expected to terminate in October 1944. On June 28 the patient complained of an irritating vaginal discharge for the first time during the pregnancy and was treated with silver picrate powder administered by insufflation in the same manner as on the day of death. A normal blood pressure was obtained on two occasions (110/55) with a pulse rate of 100. On June 10 the temperature was 100 F. and on June 28 99.6 F. The osteopath stated that on July 10 he observed no change in the condition of the patient. She was advised to use vaginal suppositories containing silver picrate (Wyeth) until she returned to his office in August. The decedent had been delivered of a seven months pregnancy in July 1943 by the same osteopath. The child died within twenty-four hours. A Kahn test performed by the St. Louis County Health Department Laboratories in July 1943 was reported as negative. The decedent was the mother of one living child.

The autopsy was performed eleven hours post mortem. The body had been placed in a standard morgue refrigerator (temperature 5 C.) shortly after death was pronounced officially. The diagnoses were the following: Primary: Gas bubbles in the right auricle and ventricle of the heart; edema and congestion of the lungs; hemorrhagic infarct of the lower lobe of the left lung; pregnant uterus containing a normally implanted placenta and a fetus weighing 1,625 Gm. and measuring 430 mm. (crown to heel); discoloration (brown-black) of the vaginal mucosa; subpleural petechiae. Accessory: infarct of the right kidney; adrenal rests of the kidneys; polyp of the ascending colon.

The heart was immersed in water in situ before being incised. The blood within the right auricle and ventricle was noted to be frothy, but this was not observed elsewhere. The placenta was implanted on the left posterolateral surface of the uterus. There was no evidence of hemorrhage or separation. The membranes were intact. The fetus was in an attitude of flexion with the head presenting. Bacteriologic examination of blood removed from the heart showed colon bacilli. No organisms of the Clostridium group were reported.

COMMENT

The clinical picture in this case—pallor, dyspnea, cyanosis and sudden collapse—strongly suggested an acute fulminating anoxia. There was evidence of an initial stimulation of respiration, which then became labored, irregular and finally ceased within a brief period of time. The appearance of a frothy exudate in the mouth reflected the rapidly developing respiratory difficulty. The association of cyanosis with these changes was consistent with acute anoxia. No information could be provided in regard to the blood pressure changes necessary to complete the clinical manifestations of acute fulminating anoxia. Lacking also was a history of sudden, excruciating retrosternal pain so often recorded in cases of postoperative pulmonary embolism. The character of the postmortem observations tended to

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1. Several deaths, however, have followed the introduction of air into various parts of the body (Weyrauch, H. M., Jr.: Death from Air Embolism Following Perirenal Insufflation, J. A. M. A. **114**: 652 [Feb. 24] 1940. Mathé, C. P.: Fatal Embolus Due to Inflation of Bladder with Air, Surg., Gynec. & Obst. **48**: 429, 1929. Tureen, L. B., and Devine, J. B.: Pathology of Air Embolism [Insufflation of Antrum], J. Missouri M. A. **33**: 141, 1936).

2. Winther, N.: Treatment of Trichomonas Vaginitis (with Silver Picrate), Minnesota Med. **19**: 731, 1936. Buxton, R. von L., and Shelanski, H. A.: Trichomonas Vaginitis, Am. J. Obst. & Gynec. **33**: 842, 1937. Mascall, W. N.: Treatment of Vaginitis by Silver Picrate, Brit. M. J. **1**: 1115, 1937. Golub, L. J., and Shelanski, H. A.: Silver Picrate Treatment, J. Lab. & Clin. Med. **22**: 1155, 1937.

3. Pierce, S. J. S.: Death from Vaginal Insufflation (During Pregnancy), Canad. M. A. J. **35**: 668, 1936. An "antiseptic powder" was said to have been used. This case must be accepted with reservation because of the fact that the body was embalmed immediately after death. Autopsy was performed twenty hours post mortem.

4. Brown, R. L.: Fatal Embolism After Insufflation of Vagina (with Silver Picrate During Pregnancy), Lancet **1**: 616, 1943. Partridge, A. J.: Third Case of Fatal Embolism Reported After Vaginal Insufflation (with Silver Picrate During Pregnancy), Brit. M. J. **2**: 329, 1943.

5. The only American manufacturer who supplies this compound for medical use publishes no such warning.

6. Silver Picrate-Wyeth's, report of the Council on Pharmacy and Chemistry, J. A. M. A. **109**: 29 (July 3) 1937.

7. Shelanski Insufflator Acceptable, report of the Council on Physical Therapy, J. A. M. A. **109**: 1453 (Oct. 30) 1937.

remove from serious consideration a diagnosis of primary reflex circulatory failure independent of all other causes as suggested by the reports of Weiss, Capps and others.[8]

Mechanism.—Although the exact port of entry was not demonstrated [9] at autopsy it may be supposed on the basis of the postmortem observations that air entered the systemic venous circulation at the site of placental implantation and was carried directly to the right auricle and ventricle of the heart. If the quantity of air thus reaching the heart was small, or if it was introduced at a slow rate, the resulting delay in the pulmonary circulation would be of no consequence. But in a case in which a large volume of air gained entrance to the systemic circulation, as in this instance, the time interval of interruption of the blood flow through the pulmonary artery would have been sufficient to bring about collapse and probably death.[10] According to several investigators,[11] 8 cc. of air per kilogram of body weight can be fatal if injected intravenously in dogs within twenty to thirty seconds. Richardson and his co-workers found that in dogs large volumes of air injected intravenously at a rate of 0.12 cc. per kilogram of body weight were tolerated well. One animal received 1,377 cc. of air in this manner in four hundred and sixty minutes without serious consequences. They noted, however, that 100 cc. of air introduced into the venous system within twenty to thirty seconds in a dog weighing 12 Kg. was fatal. Wolffe and Robertson,[12] on the other hand, claimed that intravenous injection of amounts less than 15 cc. per kilogram in dogs was not fatal. Karsner [10] reported that 450 cc. of air proved fatal within twenty-five minutes to a dog weighing 10 Kg. when the air was introduced intravenously in amounts of 20, 30, 50 and 70 cc. at a time.

The conclusion reached by many authors [13] discussing air embolism is that death results from mechanical obstruction of the pulmonary artery.

Physical Factors.—The physical factors involved in death from air embolism following insufflation of the vagina do not lend themselves readily to duplication in the laboratory. The apparatus employed is at best a crude implement serving merely to direct the drug or chemical where it is most useful; individual variations are introduced by the physician according to the manner in which he uses the device. Other modifications can appear, depending on defects in the instrument resulting either in manufacture or from long continued use. In order for pulmonary air embolism to occur, however, it is known that (1) there must be a positive pressure at the point where the gas enters the vein and (2) approximately 500 cc. of gas must enter the vein within a relatively short time.

It is recommended generally in cases in which the use of silver picrate by insufflation is indicated that 5 Gm. of 1 per cent silver picrate in kaolin be administered.[2] A Shelanski insufflator (Wyeth) was obtained and fitted with a standard glass vial (Wyeth) into which from 1 to 5 Gm. of the powder was placed. The insufflator was attached then to a graduated and stoppered flask filled with water and so arranged that compression of the rubber bulb of the instrument would displace a measurable amount of fluid from the container. When all of the powder had been ejected from the vial attached to the insufflator, readings were taken of the total liquid displaced from the water flask. Three separate trials were made using this method. The results are shown in the accompanying table.

From these results it would appear reasonable to assume that, if the conditions during the insufflation of the patient (when 2 to 3 Gm. of the powder was administered) were in any way comparable to those of the foregoing experiment, an amount of air between approximately 925 and 2,200 cc. was injected into the vaginal cavity within a period of several minutes. The capacity of the vagina is, of course, a matter that can only be estimated. If it is presumed that in the case of the average woman the vagina is a cylinder measuring approximately 8 cm. in height and 5 cm. in diameter, then its capacity is obtained from the formula $\pi r^2 h$ and thus computed to be 157 cc. This consequently might be regarded as the minimum capacity. The maximum volume of the vagina in the average woman must be based on the alteration of its dimensions during parturition. The greatest diameter to which the vagina might expand during labor is 13.5 cm. (the occipitomental diameter of the fetal head). According to the formula $\pi r^2 h$, therefore, the potential capacity of the vagina may be considered as at least 1,144 cc. It is unlikely that any patient would submit to a treatment which would suddenly distend the vagina to its limit, even if it was possible to do so. Moreover, should the rubber vaginal shield with which the instrument is equipped be pressed firmly enough against the perineum to prevent the escape of air to the outside, any positive pressure created within the vagina should tend to force the gas into the uterus. If the foregoing figures are valid, then in this case a positive pressure was created within the vagina which forced at least 500 cc. or more of air into the pregnant uterus within a brief interval of time, thus providing the necessary requisites for air embolism to result.

Amount of Water Displaced by Air Ejected from the Shelanski Insufflator When Varying Quantities of Silver Picrate Are Employed

Amount of Silver Picrate, Gm.	Cubic Centimeters of Water Displaced		
	I	II	III
1	425	625	450
2	1,025	1,125	925
3	1,225	1,325	1,300
4	1,850	1,950	2,200
5	2,700	2,800	3,000

CONCLUSION

The facts brought forth by studies of deaths resulting from vaginal insufflation during pregnancy indicate that it can be an extremely dangerous procedure, especially in the latter half of gestation. In 3 of the cases, including the 1 reported here, the decedents were nearing

8. Weiss, S., and Baker, J. P.: Carotid Sinus Reflex in Health and Disease: Its Role in Causation of Fainting and Convulsions, Medicine **12**: 297, 1933. Capps, J. A.: Air Embolism versus Pleural Reflex as Cause of Pleural Shock, J. A. M. A. **109**: 852 (Sept. 11) 1937.

9. As Moritz points out, it may prove difficult to show the specific site of entry of air into the endometrium (Moritz, A. R.: Pathology of Trauma, Philadelphia, Lea & Febiger, 1942, p. 133).

10. Karsner states that the foam which forms when air is mixed with circulating blood can require 50 per cent more time to pass through capillaries than blood alone. An additional delay may be thought to occur at the same time within the right ventricle. As a result, following systole there is probably a considerable residue of foamy blood within the right ventricle (Karsner, H. T.: Human Pathology, ed. 6, Philadelphia, J. B. Lippincott Company, 1938, p. 119). According to Bard, a rapidly induced anoxia (as in the case of inhalation of inert gas) results in unconsciousness and collapse within forty-five to eighty seconds (Bard, P.: MacLeod's Physiology in Modern Medicine, ed. 8, St. Louis, C. V. Mosby Company, 1938, p. 574).

11. Harkins, H. N., and Harmon, P. H.: Embolism by Air and Oxygen, Proc. Soc. Exper. Biol. & Med. **32**: 178, 1934. Richardson, H. F.; Coles, B. C., and Hall, G. E.: Experimental Embolism, Canad. M. A. J. **36**: 584, 1937. Coles, B. C.; Richardson, H. F., and Hall, G. E.: Experimental Embolism, ibid. **37**: 24, 1937.

12. Wolffe, J. B., and Robertson, H. F.: Experimental Air Embolism, Ann. Int. Med. **11**: 162, 1935.

13. Weyrauch,[1] Mathé,[1] Tureen and Devine,[1] Moritz,[9] Karsner,[10] Harkins and Harmon,[11] Richardson, Coles and Hall,[11] Wolffe and Robertson.[12]

parturition, and of these 2 were multiparous. The fourth death, although it occurred in only the fourth month of pregnancy, also involved a multiparous mother. It would seem, therefore, that multiparity as well as the terminal stage of gestation is a factor adding to the risk of such insufflation. In view of the fact that other methods are equally effective in the treatment of trichomoniasis it appears that insufflation of the vagina may be abandoned. As long as this method is used, however, a warning should accompany the sale of the drug and the device.[14]

Clinical Notes, Suggestions and New Instruments

A TRANSFUSION REACTION DUE TO A DANGEROUS UNIVERSAL DONOR

FAILURE OF THE SECRETING FACTOR TO PROTECT THE RECIPIENT

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Since some controversy still exists as to whether a group O donor with an unusually high titer of isoagglutinins can be dangerous when his blood is transfused into a recipient of one of the other three groups, we report here a case in which the evidence seems particularly convincing that such "universal donors" can really be dangerous.

A girl of 19 who had never been pregnant, belonging to blood group A, received 450 cc. of citrated whole blood of group O. No untoward signs were noticed during the transfusion, but forty-five minutes after completion of the transfusion the patient complained of a feeling of oppression and had a severe chill. The temperature rose somewhat over 102 F. Jaundice developed, and the icterus index had risen to 62 units within eighteen hours after the transfusion. During the next twenty-four hour period oliguria developed. The patient voided only 85 cc. of urine during this period, and the urine contained large amounts of urobilinogen. The nonprotein nitrogen of the blood was found to be 100 mg. per hundred cubic centimeters at the end of the twenty-four hour period. Recovery was slow, but at the end of several weeks the patient seemed to have recovered completely from the effects of the transfusion.

Because of evidence suggesting that the reaction might be due to the use of group O blood, a sample of blood from the patient was examined, thirty-six hours after the transfusion, to see whether the hemolysis had affected the patient's or the donor's cells. The method of Ashby was used.[1] This has the advantage of requiring very little blood and gives results of sufficient accuracy in most cases.

It was found that the total red blood cell count of the patient at this time was 3,350,000, a figure which may be accurate to about 1 per cent. By making the dilutions with a strong anti-A serum, prepared by the method of Witebsky, Klendshoj and McNeil[2] and counting the unagglutinated cells, it was found that the group O red cell count was about 350,000. Since the patient weighed 59 Kg., we may estimate that she had originally about 4.7 Kg. of blood, or possibly somewhat less. Assuming 400 cc. of whole blood to have been present in the 450 cc. of citrated blood which was administered, this means that the introduced blood amounted to about 8.5 per cent of the recipient's total, leading one to expect a count of group O cells initially of about 380,000. The figure actually found does not seriously differ from this, considering the uncertainties involved. It is of importance to note, however, that the patient had a total red count of 4,250,000 before the transfusion, which shows that she had lost 4,250,000—(3,350,000—350,000), or 1,250,000 red cells per cubic millimeter. This amounts to about 29 per cent of the patient's own cells.

It seems clear that the destruction has been almost entirely of the patient's and not the donor's cells. The amount is large enough to be quite serious and amply sufficient to explain the symptoms observed.

The serum of the donor was titrated to determine the strength of the isoagglutinins present, and an anti-A titer of between 1:1,024 and 1:2,048 was found. The anti-B titer, though less, was still high, namely 1:512. It is clear that this donor has an unusually high titer, for we find, by our technic,[3] an anti-A titer of around 1:64 in the average group O serum.

It has been suggested by some that the secreting factor[4] which determines whether or not water soluble blood group substance will be present in the tissues and secretions of the individual may assist, when present, to prevent transfusion reactions due to incompatible agglutinins of the donor. It might be expected that a large part of the introduced agglutinins would quickly be neutralized by the group substance present in the plasma and tissues of an individual of the secreting type, thus protecting his erythrocytes from their action. However, when we examined samples of saliva from the patient[3] we found to our surprise that the patient was a "secretor," and that group A substance was present in her saliva in considerable amount and therefore, by inference, in her plasma and tissues.

SUMMARY

A case of transfusion reaction due to the use of a dangerous (high titered) universal donor was observed in which the recipient lost nearly 30 per cent of her original red cells as a result of the transfusion but ultimately recovered. It was found that although the patient, who belonged to group A, was a "secretor," nevertheless the group substance present in the plasma and tissues obviously had not served fully to protect the patient's erythrocytes against the action of the incompatible isoantibodies. It is not known whether the reaction might have been more severe if the patient had been a nonsecretor.

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SCHISTOSOMA HEMATOBIUM INFECTION

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Vesical schistosomiasis has been exceedingly rare in this country and seen exclusively among patients of foreign extraction or natives who have been traveling or residing abroad. There is no endemic focus of vesical schistosomiasis on the North American continent. In the North Central states and neighboring regions of southern Canada there is an endemic focus of schistosome dermatitis or "swimmers' itch,"[1] but this parasite appears incapable of maturing in man. Large numbers of our armed forces have been engaged in actual combat in North Africa, fighting in fields and through streams where Schistosoma hematobium is endemic. With the return of these men we may expect that some will be infected. If the infection is light, symptoms may not appear for a matter of years, and so it is quite probable that men infected abroad may not have symptoms until some time after their return to civilian life. Therefore I feel it is highly desirable to report such a case in detail.

G. S. K., a white man aged 27, Egyptian, was admitted to the U. S. Marine Hospital, Baltimore, on June 7, 1944 complaining of blood in his urine for the previous four months. Late in February 1944 he had developed frequency with nocturia of four to seven times and associated lower abdominal cramps. Almost persistently at the termination of urination he had noticed a few drops of blood. There was also moderate burning on urination, and for the two months previous to his hospitalization he had had occasional sharp pains in the peri-

14. Since this article was submitted for publication an additional death from air embolism following insufflation during pregnancy has been reported (Martland, H. S.: Air Embolism: Fatal Air Embolism Due to Powder Insufflators Used in Gynecologic Treatments, Am. J. Surg. **130**: 164 [May] 1945).

From Boston University School of Medicine.

1. Ashby, W.: The Determination of the Length of Life of Transfused Blood Corpuscles in Man, J. Exper. Med. **29**: 267-281, 1919.
2. Witebsky, E.; Klendshoj, N. C., and McNeil, C.: Potent Typing Sera Produced by Treatment of Donors with Isolated Blood Group Specific Substances, Proc. Soc. Exper. Biol. & Med. **55**: 167-170, 1944.
3. Schiff, F., and Boyd, W. C.: Blood Grouping Technic, New York, Interscience Publishers, Inc., 1942.
4. Schiff, F., and Sasaki, H.: Der Ausscheidungstypus ein auf serologischem Wege nachweisbares mendelndes Merkmal, Klin. Wchnschr. **11**: 1426, 1932.
1. Brackett, Sterling: Pathology of Schistosome Dermatitis, Arch. Dermat. & Syph. **42**: 410-418 (Sept.) 1940.

neum during urination. He had also experienced a few vague episodes of chills and fever between February and June. There had been no loss of weight. A review of his systems showed no other symptoms. The patient considered himself to be in good health aside from the symptoms enumerated. The pertinent facts in his past history revealed that he was born in the Nile Delta in Egypt, where he lived in a rural community and frequently played, waded and swam in irrigation ditches and tributaries of the Nile Delta. None of his family to his knowledge had developed any simi'ar difficulties. He left Egypt over three years previous to admission, he served as a seaman aboard a British ship engaged continuously in the North Atlantic service, and he had not returned to Egypt since starting his service as a seaman. In fact, he was ashore but little even in the North Atlantic ports. He stated that he had been perfectly well until February.

Physical examination showed that he was well developed, slightly obese and not acutely ill. The temperature, pulse and respirations were normal. Significant clinical findings were a thin pannus along the upper margins of both corneas, some scarring and granulations in the conjunctiva of both upper eyelids (old inactive trachoma) and mild tenderness on deep pressure over the urinary bladder. The external genitalia and the rectal examination were normal.

Cystoscopy showed on the midposterior wall of the bladder two closely approximated, rounded, reddish, edematous masses, each about 1 cm. in diameter, which were elevated 3 to 4 mm. above the surface. The mucosa covering these nodules was vascular and rather piled up in small, "raspberry-like" groups. Arranged about these two lesions was a series of small, satellite, cystic nodules, each about 2 mm. in diameter, having thin walls and containing a thin, yellowish white fluid. Sections of the biopsy specimen showed an intact epithelium with a very

Fig. 1.—Section from biopsy of bladder lesion showing a deeply placed single ovum surrounded by dense granulation tissue; × 80.

granulomatous mass beneath, diffusely infiltrated with lymphocytes, plasma cells and many eosinophils. In the midst of this there were two small clusters of cross cut and tangentially cut ova. In one section one of these ova was cut centrally and perfectly longitudinally. This longitudinally cut ovum showed a sharp terminal spine on its pointed end. The diagnosis was Schistosoma hematobium infection of the urinary bladder.

Urine examinations of the terminal bloody urine revealed many typical ova of Schistosoma hematobium. Stool examinations showed no ova or parasites. The patient's blood count was normal, with only 3 per cent eosinophilia. His blood urea nitrogen was 11.0 mg. per hundred cubic centimeters and the serologic examination was negative.

Fig. 2.—Higher magnification of single ovum showing internal structure; × 200.

The patient was placed on a high fluid intake with a regular diet, and intramuscular injections of fuadin every other day were started. The initial dose was 1.5 cc., followed by a second dose of 3.5 cc., and then each succeeding dose was 5 cc. until a total of 40 cc. had been administered. The urine became free from ova in the latter part of June and remained free. The hematuria and all symptoms disappeared shortly after treatment started, and there was no reaction to the fuadin. On July 4 cystoscopy revealed definite improvement, with very slight evidence remaining of the previous polypoid-like lesions. A biopsy showed only granulation tissue beneath the mucosa, with a diffuse cellular infiltration of lymphocytes and eosinophils. No ova were found.

COMMENT

Prompt diagnosis is very important, because therapy by antimony compounds gives best results in recent rather than in long standing infections in which extensive tissue damage has taken place. In late cases after pronounced scarring, deformity and sinus tracts have formed, therapy is of little avail and the prognosis is poor. Even in the early cases more than one course of the drug may have to be given. Antimony and potassium tartrate and sodium antimony tartrate are given intravenously, while fuadin (stibophen) is given intramuscularly. These drugs kill both the adult worms and the ova. Fuadin appears to be the least toxic and to cause few reactions. It gave excellent results in our case. Liver involvement is infrequent in Schistosoma hematobium infections but does occur when the infection is heavy and the case is untreated. Local carcinomatous changes in the polypoid growths in the bladder have been reported fairly frequently in long standing untreated cases.

During the four months before coming to us this patient had been hospitalized on two occasions at other institutions. Cystoscopy was done both times, and the first time the impression

was that of benign polyps. On the second occasion the impression was that of a papillary carcinoma and he was transferred to the Tumor Clinic at the Marine Hospital, Baltimore, for treatment. At neither of these cystoscopies was a biopsy taken. The patient's terminal urine was not examined microscopically.

Human schistosomiasis is a rare entity in this country, and our literature contains but few references to this disease. Only one of these[2] refers specifically to Schistosoma hematobium infection. However, the textbooks[3] on tropical diseases contain excellent discussions, for Schistosoma hematobium infection has been extensively studied in Egypt and North Africa. The reader is referred to these textbooks for details of the life cycle, pathology and epidemiology. It is sufficient here to summarize the salient features. Man is the principal definitive host. Only a few monkeys have been found naturally infected. The ova are passed in the urine and rapidly hatch (in warm weather), liberating a free swimming parasite, the miracidium, which seeks the suitable intermediate host, a snail. Within the snail metamorphosis occurs with the development and liberation of large numbers of cercariae, minute fork tailed parasites which swim about, searching for their definitive host, man. They penetrate the unbroken skin, lose their tails and enter the circulation. They lodge in the portal radicles, feed, develop and become sexually differentiated in about four to six weeks. The young parasites emerge from the liver and work their way down into the veins of the urinary bladder. In severe and heavy infections some of the parasites lodge in the hemorrhoidal

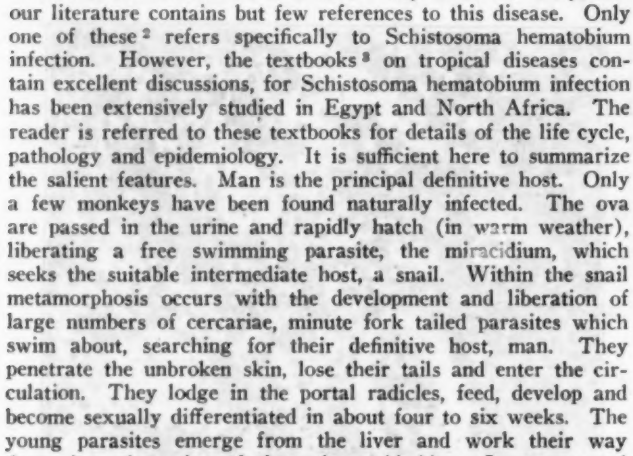


Fig. 3.—Nest of ova immediately beneath intact bladder epithelium; slightly reduced from a photomicrograph with a magnification of 160 diameters.

and rectal veins. The fertilized female then deposits her eggs in rows in the walls of the fine tributaries of the vesical veins. The shell is rather porous, and the ova probably secrete a lytic enzyme which aids in their erosion through the vessel wall and bladder mucosa. This process is irritating and there is considerable cellular infiltration characterized by large numbers of eosinophils and also much fibroblastic proliferation. Some ova are permanently walled off and calcified, but many others pass into the urine, causing eroded and ulcerated areas. At the end of urination muscular contraction is strongest and results in bleeding and liberation of many ova from these polypoid and ulcerated lesions in the bladder.

In heavy infections symptoms occur and ova may make their appearance in the urine within sixty days after infection. However, many months may elapse before symptoms occur and ova are present in the urine. In our case at least three years elapsed between infection and the appearance of symptoms.

2. Blum, B. B., and Lilga, H. V.: Schistosomiasis Infection: Report of Two Cases Found in Northern Michigan, J. A. M. A. **121**: 125-126 (Jan. 9) 1943.

3. Strong, R. P.: Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, ed. 6, Philadelphia, The Blakiston Company, 1943, vol. 2. Craig, C. F., and Faust, E. C.: Clinical Parasitology, Philadelphia, Lea & Febiger, 1940. Belding, D. L.: Textbook of Clinical Parasitology, New York, D. Appleton-Century Company, Inc., 1942. Bercovitz, Z. T.: Clinical Tropical Medicine, New York, Paul B. Hoeber, Inc., 1944.

We have in this country snails related to those that serve as the intermediate host in Egypt and Africa. However, it has not been proved that these snails will serve as suitable intermediate hosts. Because of the difference in our living and working conditions it is extremely doubtful that any focus of Schistosoma hematobium is likely to be established by the scattered cases of Schistosoma hematobium infection returned from abroad.

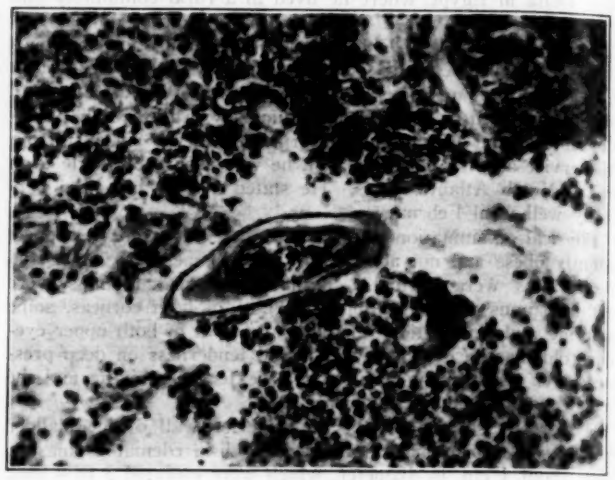


Fig. 4.—Centrally cut ovum, showing the characteristic terminal spine; × 300.

In our case we found large numbers of ova in the terminal urine, and, indeed, many ova frequently hatched while on the microscope slide under observation without any dilution of the urine. Generally it is recorded that a dilution of urine with 10 parts of water is necessary for these ova to hatch. All our efforts to preserve these ova with the usual chemical preservatives, such as solution of formaldehyde and glycerin, were failures, for within thirty-six hours no intact ova could be found, and we came to the conclusion that no known chemical preservative was satisfactory. The ova hatched rapidly if warm but more slowly if cool. From this experience we feel that rapid freezing might be a possible satisfactory method of preserving these ova. If a specimen is to be shipped and preservation of the ova is desired, rapid freezing and subsequent packing in solidified carbon dioxide offers a possibility of preservation and shipment.

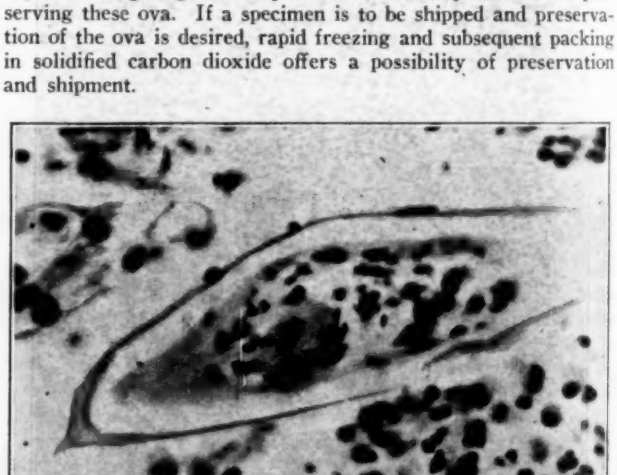


Fig. 5.—Centrally cut ovum, showing the characteristic terminal spine; slightly reduced from a photomicrograph with a magnification of 600 diameters.

CONCLUSIONS

1. Symptoms of Schistosoma hematobium infection may not develop for many months to several years after exposure if the infection is light.

2. Biopsies should be taken of polypoid bladder lesions seen on cystoscopy.

3. Persons developing hematuria who give a history of having been in Egypt or North Africa should have microscopic studies of their terminal urine for Schistosoma hematobium ova.
4. Fuadin is an effective drug in the treatment of Schistosoma hematobium infections.
5. Ova of Schistosoma hematobium hatch rapidly when warm, even without dilution of the urine with water.
6. No known chemical means of preserving these ova has proved satisfactory.
7. Rapid freezing is suggested as a possible method of preserving these ova.
8. In the light of our present knowledge, endemic foci in this country of Schistosoma hematobium are not to be anticipated.

THE DANGER OF INTRAMUSCULAR INJECTION OF CALCIUM GLUCONATE IN INFANCY

REPORT OF THREE CASES, WITH ONE DEATH

STANLEY S. LAMM, M.D., BROOKLYN

My purpose in this paper is to stress and reemphasize the danger of using calcium gluconate for intramuscular injection in infants.

In 1936 there were two reports which recorded the effects of calcium deposition in the tissues of 2 infants who had received the calcium intramuscularly. Tumpeer's case [1] was that of an infant who weighed 6 pounds 13 ounces (3.1 Kg.) and received 9 cc. of 10 per cent calcium gluconate intramuscularly on the third day of life. At the age of 5 weeks x-ray examination demonstrated a radiopaque substance in the thigh and buttocks where the injection had been made. A week later there was a slough of the tissue, with the extrusion of calcified material which was identified as calcium phosphate. By the fourth month of life an x-ray of the region was normal. Von Hofe [2] reported the case of an infant who had received calcium gluconate intramuscularly because of twitching on the third, fifth and sixth days of its life. Ten cc. of calcium gluconate had been injected into the gluteal muscles on two occasions, and one dose of 10 cc. had been given intramuscularly. All the areas became indurated at the age of 2 weeks and infection occurred in one of the regions previously injected. X-ray showed calcification in the soft tissues of the gluteal and the scapular regions. Bakwin [3] and Shannon [4] have reported other instances of infection following intramuscular injections of calcium gluconate.

I now report 3 cases of infants who received calcium gluconate intramuscularly with subsequent abscess formation. In the last one gangrene of the tissues and death supervened. As far as I know this is the only recorded death from this complication.

REPORT OF CASES

CASE 1.—R. M. was a 3 months old white boy baby admitted to the Long Island College Hospital on May 30, 1937 because of fever, collapse and convulsions. The family and birth history were negative. The infant had been hypertonic since birth. For a month prior to admission there had been no weight gain. The present illness was characterized by fever of three days' duration. It fluctuated between 100 and 102 F. The cause of the fever was undetermined. Irritability was pronounced, and the infant slept poorly these three days. At 10 o'clock on the morning of admission the patient suffered a vasomotor collapse, including cyanosis and respiratory difficulty. The temperature rose abruptly to 107.5 F. but was reduced by hydrotherapy to 102 F. The stuporous state persisted for four hours, followed by hyperexcitability and irritability. Hospitalization was thereupon advised. Meanwhile, 10 cc. of 10 per cent calcium gluconate was injected into the muscles of the right buttock.

The admission examination revealed that the infant was acutely ill, decidedly cyanotic and in severe respiratory distress. Except for a slight left internal strabismus, the examination was negative. Blood count revealed 5,600,000 red cells, 13,000 white cells and 64 per cent polymorphonuclears. The urine showed 3 plus urine albumin and many red and white cells and cellular casts.

The diagnosis of pyuria was made. The therapy included intravenous glucose and sodium R-lactate injections. There was a favorable response, so that on discharge the patient was afebrile and the urine was normal. However, an abscess had developed at the site of injection, which was about an inch in diameter. This healed after several weeks, but a permanent scar remains.

CASE 2.—C. S. R., a white girl baby born on Nov. 19, 1942, birth weight 7 pounds (3.2 Kg.), had a convulsion on the third day after birth. Ten cc. of 10 per cent calcium gluconate was injected into the right buttock. Forty-eight hours after the injection the buttock became indurated and discharged purulent material for six weeks. After two months healing occurred.

CASE 3.—A. Y., a white girl baby, one of twins, was delivered on July 13, 1943 by low forceps. She weighed 4 pounds 11 ounces (2.1 Kg.). The mother and babies were discharged on the eighth day in good condition. At the age of 14 days the mother observed two convulsions at the 2 a. m. feeding time. These convulsions began as a twitching of the face, followed by clonic movements of the left arm and leg. Her physician sent the baby to the hospital. There the infant received an injection of 10 cc. of calcium gluconate into each buttock for "possible tetany." There were no further seizures. On August 6, when the baby was 24 days old, she was discharged with the advice that a salve was to be applied to the buttocks, because they were infected where the needle had been inserted.

Areas of gangrene in case 3.

At home the mother noted that her baby "felt feverish" and the buttocks appeared worse. She therefore brought her to the Kings County Hospital (Long Island College Division) the following day, August 7.

The infant was well developed and well nourished and weighed 6 pounds 7 ounces (2.9 Kg.). She appeared acutely ill. Her temperature was 102 F. The examination on admission was normal except for both buttocks. These were equally affected. Each had an area of sloughing gangrene 5 by 5 by 1.5 cm. involving the ischiorectal fat and gluteus maximus, as shown in the illustration. The ischial tuberosities, though not visible, were easily palpated. When the infant bore down, the perirectal tissues bulged into the right ischiorectal space. Two days after the admission a surgical débridement was performed. The slough contained necrotic fat, connective tissue and muscle. Therapy consisted of sulfathiazole, orally and as an ointment for the buttocks, and two blood transfusions. In spite of these

From the Department of Pediatrics, Long Island College of Medicine, Long Island College Hospital and Kings County Hospital (Long Island College Division).

1. Tumpeer, I. H., and Denenholz, E. J.: Calcium Deposit Following Therapeutic Injections in Tetany of Newborn, Arch. Pediat. **53**: 215 (April) 1936.
2. von Hofe, F. H., and Jennings, R. E.: Calcium Deposition Following Intramuscular Administration of Calcium Gluconate, J. Pediat. **8**: 348 (March) 1936.
3. Bakwin, H.: Pathogenesis of Tetany of Newborn, Am. J. Dis. Child. **54**: 1211 (Dec.) 1937.
4. Shannon, W. R.: Tetany Syndrome in Newborn Infants: Remote Deposit of Calcium Salts Following Injection of Calcium Gluconate, Am. J. Dis. Child. **56**: 1046 (Nov.) 1938.

measures the course of the infant's illness was steadily downhill. On the third day pneumonia set in. This was associated with the development of meningitis. Death followed on the fifth day after admission.

The autopsy was performed by Dr. Caspar Burn. The body, weighing 7 pounds (3.2 Kg.) and measuring 19 inches (48 cm.), appeared to be poorly nourished. There was no evidence of jaundice or petechial hemorrhages of the skin. The scleras and conjunctivas were clear and showed no petechiae, jaundice or hemorrhages. The buttocks presented pronounced ulcerations. The ulceration of the left buttock was oval, measured 2.5 by 5 by 3.5 cm. and was 1 cm. deep. It had a slightly irregular jagged edge and contained a small amount of yellow, necrotic material which covered the adipose tissue and the left gluteal muscles. The ulceration on the right buttock measured 2.5 by 5 by 3 cm. and was 1 cm. deep; this presented a yellow necrotic slough covering the gluteal fat; each ulceration was surrounded by a purple areola 4 to 5 cm. wide.

The pleural surfaces were smooth, glistening and translucent; no evidence of apical scars, tubercles or exudate was noted. The lungs had their usual shape and both lungs appeared to be collapsed except in the right lower lobe, which was firm and prominent. The external surfaces of the left lung showed numerous small, depressed, purple areas, whereas the whole right lung appeared a diffuse purple. On section the lung parenchyma was moist and exuded a frothy, pink material. The right lower lobe was dark beefy red and showed almost complete loss of lobular formation. The cut surface appeared smooth and darker red than usual, with this change being more prominent in the right lung than in the left. The bronchi and blood vessels showed no undue prominence, and the bronchi were lined by a smooth, white, glistening membrane. The hilar and tracheobronchial lymph nodes were not unduly prominent and showed no evidence of tuberculosis.

The scalp over the occiput showed two old hematomas about 6 cm. in diameter, most likely the result of the use of the scalp veins for intravenous therapy ante mortem. The anterior fontanel was diamond shaped, soft, 3 fingerbreadths in diameter, and showed no bulging or recession. The sagittal suture showed no overriding, and the posterior fontanel was closed. The bones of the vault of the skull were soft and showed no irregularities or fractures. The dura showed no evidence of hemorrhage or tearing. The meninges, except over the base of the brain, had lost their usual translucency, and within the subarachnoid spaces in this region there was an accumulation of fluid, greenish, purulent material. The brain was symmetrical and had well formed sulci and gyri, with no evidence of softening. The cerebellum was well developed. The blood vessels were thin walled and showed no aneurysms or arteriosclerosis. On section, the convolutions of the gray matter were pale and indistinct in outline but were regularly arranged. The ventricles appeared somewhat dilated and were filled with granular, pus-like material. The medulla and cerebellum showed the usual structures and did not appear unusual.

The skin was lined with stratified squamous epithelium, which stopped short at the edge of the ulceration. The corium of the skin contained sweat and sebaceous glands and hair follicles. The edge of the sinus consisted of collagenous material together with dilated and engorged newly formed capillaries and edema fluid. This process involved the base of the ulcer and to a slight extent the adjacent adipose tissue. There were a few foreign giant cells situated within the newly formed granulation tissue. Occasional polymorphonuclear leukocytes were present within the necrotic zones.

The remaining organs were essentially normal.

Bacteriologic examination of the heart's blood revealed Staphylococcus aureus, of the ulcers of the buttocks Staphylococcus aureus, Bacillus pyocyaneus and Proteus vulgaris and of the meninges Staphylococcus aureus.

The anatomic diagnoses were abscess of buttocks, sepsis, atelectasis of both lungs, bilateral hemorrhagic pneumonia and acute purulent basilar meningitis.

COMMENT

I have referred to the fact that previous articles have stressed the danger of injecting calcium gluconate intramuscularly in infants. The possible explanation lies in the fact that the calcium, which is injected as a gluconate, is precipitated as a phosphate. The reason for this may be linked up with an increased phosphorus content of the blood serum in these cases. This is followed by coagulation within the local blood vessels, accounting for the necrosis and sloughing of the tissues (Tumpeer [1]).

Whatever the reason, the practice would still appear to be quite common. Furthermore, several excellent sources state that calcium gluconate may be used with safety intramuscularly. In Goodman and Gilman's textbook [5] with reference to calcium gluconate the statement is made "It can be administered orally, intravenously or intramuscularly." No mention is made of the danger of using it intramuscularly in infants. The intramuscular injection of calcium gluconate is discussed in New and Nonofficial Remedies,[6] which is issued under the supervision of the Council on Pharmacy and Chemistry of the American Medical Association. On page 454, under actions and uses of calcium gluconate, it states that it "is nonirritant for hypodermic or intramuscular use," "for children, 0.2 to 0.5 Gm. administered every day, on alternate days or every third day."

In view of the previous reports and these additional 3 cases, including a fatality, through sepsis not due to the drug, it would seem advisable to eliminate from the book and drug literature the use of calcium gluconate for intramuscular injection in infancy and specify the use of calcium gluconate in infants orally and intravenously only.

CONCLUSION

Three cases of abscess formation, including one death, following the injection of calcium gluconate intramuscularly in infants have been observed. It would appear advisable to avoid completely the use of calcium gluconate intramuscularly in infants and to restrict its use to the oral and intravenous routes.

340 Henry Street.

Council on Foods and Nutrition

The Council on Foods and Nutrition has authorized publication of the following statement.

GEORGE K. ANDERSON, M.D., *Secretary.*

POLICIES OF THE COUNCIL WITH RESPECT TO THE NUTRITIVE QUALITY OF FOODS

The Council on Foods and Nutrition has long concerned itself with the quality of foods. At first this interest involved primarily the purity of individual products and the truthfulness of statements made on package labels and in advertising. More recently the attention of the Council has also been given to the nutritional quality of foods and to the effect of a poor nutritional environment on the public health. A recognition of the importance of natural foods of both plant and animal origin in the maintenance of high standards of nutrition is paramount. It is necessary that the vast bulk of our diets in the way of carbohydrates, fats and proteins must come from products of this type. While certain nutrients found in these foods may be prepared synthetically, nutritional knowledge is incomplete, and unknown food factors undoubtedly exist which can be obtained only from natural food products.

It is well known, however, that many foods have suffered deterioration in their nutritional values as a result of the influences of modern civilization. Fruits and vegetables have been influenced by selective breeding to give better yields per acre and to have better keeping qualities in market or a better appearance. These induced changes have frequently brought about a reduction in the content of vitamins or minerals, or both, such that consumption of natural foods does not always insure adequate nutrition. The preference of the public for processed foods has frequently caused many of the valuable nutrients of a food to be discarded in favor of the nutritionally inferior, smooth, bland parts of the natural food. The use of

5. Goodman, L., and Gilman, A.: The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1944, p. 604.
6. New and Nonofficial Remedies, Chicago, American Medical Association Press, 1944, p. 454.

high temperatures in the preparation of certain types of foods further reduces their value to the body. Examples of these effects may readily be found in the chemically pure sugar of commerce, which lacks all but traces of its original vitamins and minerals, in white flour, from which the nutritious germ and outer coatings have been removed, and in the refined cereals, which undergo various processing procedures. These "denatured" foods have come to replace in large part the nutritious more nearly whole cereal grains which in former days supplied a considerable portion of the vitamins of the B group that enter the diet.

A consequence of this sophistication of the modern food supply has been to increase the difficulty of selecting diets that are suitable to maintain a good state of nutrition. Extensive educational programs have failed to bring about a greater appreciation and usage of the natural type of foods, such as whole wheat flour and bread. The continuation and extension of the preference for nutritionally inferior foods poses a question of grave concern with respect to the effect on the public health. This is especially disturbing, since animal experiments have shown that ill effects resulting from less than satisfactory diets may become obvious only after many years.

In view of these facts the Council wishes to encourage efforts to improve as far as possible the nutritive quality of all foods which contribute importantly to the American diet and which thereby constitute the food environment of the people. A genuine interest is taken by the Council in all attempts to raise the level of nutrients in products of the farm and in the institution of measures designed to retain in high degree the nutrients of foods during storage, processing and cooking. Programs of the dairy industry directed toward the production of milk of a higher and more uniform vitamin A content have had the support of the Council. Recently plans have been made to grant acceptance and use of the Council Seal to canned tomato and citrus juices, which contain a high natural content of vitamin C. The Council has also encouraged limiting consumption of sugar to such amounts as are needed to increase the palatability of foods with significant nutritional values.[1]

In spite of all these efforts there exist now and will undoubtedly continue to exist for some time certain specific deficiencies in large segments of the population which can be remedied best through addition of the indicated nutrients to cheap, staple foods that occupy substantial places in the dietary.[2] The Council has favored and encouraged the addition of certain nutrients to selected foods for the purpose of overcoming these deficiencies by replacing as nearly as possible that which has been lost in processing or by making appropriate foods serve as carriers of dietary essentials which otherwise are inadequately supplied by many diets. Such additions considered to be in the interest of the public health are enumerated as follows:

Restoration (referred to as enriched in instances in which federal standards have been enacted)

of processed cereals with thiamine, riboflavin, niacin and iron.

of corn meal with thiamine, niacin and iron.

of hulled rice with thiamine, niacin and iron.

Enrichment of white flour with thiamine, riboflavin, niacin and iron.

Enrichment of white bread and rolls with thiamine, riboflavin, niacin and iron.

Enrichment of farina with thiamine, riboflavin, niacin and iron.

Fortification

of milk with 400 units of vitamin D per quart.

of oleomargarine with not less than 9,000 U. S. P. units of vitamin A per pound.

of salt with iodine.

The Council reaffirms its expression of opinion respecting the conditions under which additions of vitamins or minerals to foods will be approved as stated here and previously.[3] As more knowledge is acquired, some of the present "enrichment" programs may be modified. Some may be discontinued and new ones may be added. It is believed, however, that the present guiding principles will be maintained. In any case the addition of synthetics to natural foods must depend on the prevention of known deficiencies in groups of the population and not on the utilization of synthetic products which happen to be available at low cost. In the future the synthetics may be used more efficiently in animal nutrition to decrease the cost of animal products so that these materials may be more widely used in the human diet.

The Council disapproves of unlimited or indiscriminate fortification of general purpose foods with minerals, vitamins, amino acids or other nutrients. It likewise disapproves of artificial combinations of edibles designed to carry vitamins, minerals, amino acids or other nutrients for the use of the general public. It will use its influence to discourage the sale of products of the latter type except as special purpose products appropriately labeled to indicate their special purpose uses.

1. Council on Foods and Nutrition: Some Nutritional Aspects of Sugar, Candy and Sweetened Carbonated Beverages, J. A. M. A. **120:** 763 (Nov. 7) 1942.
2. This statement of principle respecting addition of nutrients to foods is in harmony with the policy of the Federal Security Agency as promulgated July 3, 1943, Federal Register, July 3, 1943, p. 9170.
3. Annual Meeting of the Council on Foods, J. A. M. A. **123:** 681 (Aug. 19) 1939.

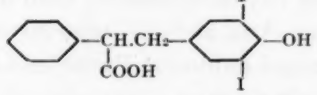
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

PRIODAX.—β(4-hydroxy-3-5-diiodophenyl)-α-phenyl-propionic acid.—$HOC_6H_2I_2.CH_2.C_6H_5(CH)COOH$.—M. W. 494.1. Priodax contains 51.37 per cent of iodine.



Actions and Uses.—Priodax is used as a medium for cholecystography. It is claimed to cause less nausea, vomiting and diarrhea than tetraiodophenolpthalein. The drug is excreted primarily through the kidneys.

Priodax is contraindicated in acute nephritis, uremia and acute disorders of the gastrointestinal tract. Side effects that may be encountered occasionally include pain on urination, nausea, vomiting, diarrhea, griping, headache, sensation of burning in the esophagus, generalized itching, dryness of the mouth, general weakness and flatulence.

Dosage.—The average adult dose is 3 Gm., although more may be given. The patient swallows the drug during or after a light fat-free meal in the late afternoon. Nothing is then eaten until the roentgenologic examination is completed the next morning.

Tests and Standards.—

Prodax occurs as a white or faintly yellowish, practically odorless and tasteless powder; soluble in alcohol and ether; slightly soluble in benzene and chloroform; soluble in both alkali carbonate and hydroxide solutions; insoluble in water. Priodax melts at 157 to 162 C., with decomposition.

Shake about 0.2 Gm. of priodax with 2 cc. of water and 2 cc. of chloroform: the chloroformic layer remains colorless (*absence of free iodine*).

Place about 0.3 Gm. of priodax in a 50 cc. glass stoppered cylinder, add 30 cc. of water, shake the contents for five minutes, filter through paper: separate portions of 10 cc. each of the filtrate yield a very faint opalescence with 0.5 cc. diluted nitric acid and 0.5 cc. silver nitrate solution (*soluble halides*); no coloration or precipitation on saturation with hydrogen sulfide (*salts of heavy metals*).

Dry about 0.5 Gm. of priodax, accurately weighed, to constant weight over sulfuric acid: the loss in weight should not exceed 0.1 per cent. Incinerate 0.5 Gm. of priodax, accurately weighed, in a platinum crucible: the residue does not exceed 0.1 per cent. Transfer about 0.25 Gm. of priodax to a bomb tube; determine the iodine content by the Carius method: the amount of iodine found corresponds to not less than 50 per cent nor more than 52 per cent, when calculated to the dried substance.

SCHERING CORPORATION, BLOOMFIELD, N. J.

Tablets Priodax: 0.5 Gm.

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SATURDAY, SEPTEMBER 29, 1945

TSUTSUGAMUSHI DISEASE

According to Blake, Maxcy and their colleagues,[1] the term tsutsugamushi disease is, on the basis of priority, appropriate to describe the condition which is also commonly known as scrub typhus or mite-borne typhus. The causative organism is Rickettsia orientalis and this name has the best claim to recognition. After thorough evaluation of the evidence, these investigators conclude that the disease, originally known as tsutsugamushi by the Japanese, is not confined to the river valleys of the islands of Honshu, Formosa and the Pescadores but has been reported from many localities in southeastern Asia and the adjacent islands in the Indian Ocean and southwest Pacific and in the coastal area of North Queensland.

Although there is some variation in clinical manifestations of the disease, particularly with regard to the frequency with which the primary lesion, or eschar, is found and the severity or case fatality rate, these variations are not greater than those which have been observed in Rocky Mountain spotted fever or classic louse-borne typhus. Consequently, although there may be some variation in virulence of the strains of the causative agent in different geographic areas, satisfactory evidence on which to base a recognition of two or more different diseases is not available.

The only vector which has been proved by animal experiments is the mite Trombicula akamushi, which occurs in Japan, Formosa, the Pescadores Islands and possibly elsewhere. The closely related species Trombicula deliensis, present in Sumatra, the Federated Malay States, India and Queensland, has also been incriminated, but crucial proof that this mite serves as a vector is still lacking. The principal host of tsutsugamushi fever in Japan is a field vole which has been found to be naturally infected with Rickettsia orientalis. Because of its distribution, numbers and habits, this rodent probably serves as the principal reservoir host.

The principal early symptoms and physical signs of mite-borne typhus during the first five to seven days of the disease are headache, apathy and general malaise, fever, anorexia, bradycardia, congestion of the conjunctiva, lymphadenitis and a characteristic eschar. Only the presence of a typical eschar is sufficiently pathognomonic to establish the diagnosis at the first stage of the disease. A macular or maculopapular rash usually appears on the trunk between the fifth and the eighth day. The course is variable: the total febrile period in the mild cases may extend for twelve to fourteen days; when moderately severe, there may be signs of pneumonitis and encephalitis with recovery by lysis early in the third week; in the severe cases fever may last for three weeks or more with signs of severe pneumonitis and encephalitis. Collapse of the peripheral circulation and myocarditis are common in the severe cases. The Weil-Felix test becomes positive for Proteus OXK about the twelfth or fourteenth day of illness in most cases. The causative organism, R. orientalis, can be recovered readily from the blood of patients during the acute stage of the disease by the intraperitoneal inoculation of 0.2 to 0.3 cc. of blood in white mice. When positive, both of these laboratory procedures establish the diagnosis, but the disease is not excluded by a negative Weil-Felix test for Proteus OXK.

Blake and his colleagues also report the isolation of nine strains of a rickettsia from patients with mite-borne typhus of New Guinea. Inoculation studies were carried out with white mice, rabbits and hamsters. The latter animal proved to be excellent for studies of cross immunity. It was also found possible to cultivate these strains in the yolk sac of the fertile hen's egg. These investigations showed that the morphologic and pathogenic characteristics of both the human strains and the mite strains were identical and were similar to those described for R. orientalis, thus confirming the view that the mite-borne typhus of New Guinea is the same as tsutsugamushi disease of the Japanese Empire.

In a companion study, five different foci of tsutsugamushi disease in British and Dutch New Guinea and adjacent islands affecting American troops were investigated.[2] Strains of the etiologic agent, R. orientalis, were recovered by injection of white mice made with suspensions of two species of mites taken from wild rats. It was concluded that in local areas, at least, these mites, Trombicula fletcheri and Trombicula walchi, are vectors of importance. R. orientalis was recovered also from the brains of wild rats of a species common in

1. Blake, Francis G.; Maxcy, Kenneth F.; Sadusk, Joseph F., Jr.; Kohls, Glen M., and Bell, E. John: Studies on Tsutsugamushi Disease (Scrub Typhus, Mite-Borne Typhus) in New Guinea and Adjacent Islands: Epidemiology, Clinical Observations and Etiology in the Dobadura Area, Am. J. Hyg. **41**: 243 (May) 1945.

2. Kohls, Glen M.; Armbrust, Charles A.; Irons, Edwin N., and Philip, Cornelius B.: Studies on Tsutsugamushi Disease (Scrub Typhus, Mite-Borne Typhus) in New Guinea and Adjacent Islands: Further Observations on Epidemiology and Etiology, Am. J. Hyg. **41**: 374 (May) 1945.

the region. From laboratory studies of the strains recovered, it seemed almost certain that they were identical with human strains.

Tsutsugamushi disease is a definite entity with a known etiology and vector. The disease is widespread over an enormous geographic area and, because the vector is a mite, or possibly mites, living on several species of rodents, the spread of the disease to areas in which it does not now occur is a distinct possibility.

LOCAL PUBLIC HEALTH ORGANIZATION

Under the title "Local Health Units for the Nation" Emerson [1] reports for the Subcommittee [2] on Local Health Units of the American Public Health Association's Committee on Administrative Practice the status of local public health organization in the counties in the continental United States, exclusive of city health departments.

The committee was appointed under the provisions of a resolution passed by the American Public Health Association on Oct. 29, 1942, a similar resolution passed by the state and provincial health authorities of North America in 1944 and another passed by the House of Delegates of the American Medical Association on June 10, 1942. All these resolutions called, in effect, for the "earliest possible complete coverage of the nation's area and population by county, district or regional modern health service." [3] This report is a large volume of 381 pages in which is set forth for each state the present status of local county health organization, together with a brief summary of the characteristics of the state, such as its urban or rural character, its health conditions and per capita buying power of its people, its hospital bed capacities and its public health law. The data for each state are set forth in a descriptive article, tabulations and a map showing where county health organization now exists.

This report of the factual data is the necessary first step by which the objectives set forth in the resolutions can be furthered. Combined approval from state health officials, public health workers and the medical profession should go far to expedite progress.

Until the most remote American family has access to accepted modern public health services, the nation's health will not be properly served. Expansion of public health activity, long advocated and pioneered by the medical profession, is a more sound and logical step toward improving the nation's health than many grandiose plans for medical care.

The report contains observations which may briefly be summarized:

1. The delivery of the half dozen essential, primary services of public health should be a function of local government responsive intimately and personally to the needs of each community.

2. One third of the nation lives under substandard local health organization ill equipped to give basic minimum health protection at all times and to meet public health emergencies quickly and efficiently.

3. Approximately 20,000 local governmental units, in addition to some 70,000 school boards, are currently responsible for local health service in the United States.

4. The failure of local government in some states to organize workable administrative units of local health service is gradually removing the intimate and personal service of local health protection from the sphere of local to that of state government.

5. In order to provide the organization of workable administrative units of local health jurisdiction, each state should have enabling legislation, either permissive or preferably mandatory, whereby cities and counties may unite to form districts of suitable size for local health administration.

6. For approximately one dollar per capita every person in the United States could have minimum basic local health services under a professionally trained full time medical health officer, with appropriate associated professional and technical personnel and equipment.

7. This countrywide coverage could be achieved through 1,200 local health units.

8. The staff of 1,200 units such as described, if staffed according to the minimum standard, will require roughly 2,000 full time health officers and directors of medical education, all physicians. It will require part time participation of practically 6,000 local practicing physicians. In addition there will be needed roughly 26,000 public health nurses, 5,000 "sanitariums," 9,000 clerical and secretarial workers, 3,500 laboratory workers, 3,800 dentists, 540 health education specialists and 2,400 unskilled workers.

Here is a postwar employment project that offers tremendous opportunities for improving the nation's health. Its administration would be almost entirely local, with technical and financial aid where needed, through state health departments with federal participation. This is one answer to the problem of postwar improvement of the nation's health, as recognized in the platform of the American Medical Association.

1. Local Health Units for the Nation, a report by Haven Emerson, M.D., Chairman, Subcommittee on Local Health Units Committee on Administrative Practice, American Public Health Association, New York, 1945. Commonwealth Fund.

2. The subcommittee: Burton F. Austin, M.D.; Richard F. Boyd, M.D.; Arthur J. Chesley, M.D.; John R. Hege, M.D.; Hugh R. Leavell, M.D.; Joseph W. Mountin, M.D.; George H. Ramsey, M.D.; Nathan Sinai, Dr.P.H.; John A. Ferrell, M.D.; Clarence L. Scamman, M.D.

3. Proceedings, House of Delegates, American Medical Association, June 10, 1942.

Current Comment

RESIDENCIES AND FELLOWSHIPS

Elsewhere in this issue is a newly revised list of Approved Residencies and Fellowships for Veteran and Civilian Physicians. Included in this group are 736 hospitals whose educational programs have been investigated and approved by the Council on Medical Education and Hospitals. Education in these institutions is acceptable to the American boards. The hospitals are also eligible for the training of veterans under the G. I. Bill of Rights. The current list offers 7,666 residencies and assistant residencies as compared with 5,796 in 1943. However, in relation to the normal peacetime number of 5,256 residents reported in 1941 there is a total of 2,410 additional openings to meet the immediate needs of returning veterans. As the peak of medical demobilization is reached, hundreds of additional residencies will no doubt be available. Many of the approved intern and residency hospitals which have not yet attained a full development of educational services are now organizing new training programs or creating a further expansion of residencies already in existence. Hospitals in every part of the country have indicated a desire to participate in the postwar educational program as far as their facilities and teaching material will permit. In many institutions these plans are already well advanced, so that a considerable number of residencies now in process of investigation may soon be added to the approved list. The Council, in collaboration with the Committee on Postwar Medical Service and the American boards, will continue to exert every effort to provide additional educational opportunities of high quality for physicians seeking advanced hospital training on their return from military service.

THE HEREDITARY PATTERN OF BRAIN WAVES

The electroencephalographic records of 71 twins and 1 triplet were studied by Lennox and the Gibbses.[1] The 1 triplet was counted as 3 dizygotic twins. Fifty-five twins were monozygotic. In these the electroencephalographic tracings were considered identical in 85 per cent, not identical in 4 per cent and in doubt in the remaining 11 per cent. For the 19 dizygotic twins, lack of similarity in the electroencephalographic tracings was found in 95 per cent; they were alike in only 5 per cent. The Boston investigators further found that there was agreement between the physical and brain wave tests of identity in 88 per cent of the 74 twins (including the triplets), disagreement in 4 per cent and doubt in 8 per cent. In contrast with many of the established traits useful in judging the identity of twins, the electroencephalogram was found unstable and subject to frequent environmental changes. For example, the number of waves per second in the electroencephalograms increase with age, whereas irregularities tend to decrease. Another interesting feature of this study was the observation that the proportion of abnormal electroencephalographic records was higher in this group of apparently normal twins than in the general population. These results suggest that in the absence of acquired variations the brain wave pattern is a hereditary trait. If dependable apparatus and experienced interpretation are employed, the electroencephalogram can be considered a useful method of extending human genetic studies and in tracing neuropsychiatric diseases which are associated with cerebral dysrhythmia. The possibilities of forecasting the inheritance of certain neuropsychiatric disturbances are obvious.

1. Lennox, William G.; Gibbs, Erna L., and Gibbs, Frederic A.: The Brain-Wave Pattern, an Hereditary Trait, J. Heredity **36**: 233 (Aug.) 1945.

OFFICE SPACE FOR RETURNING PHYSICIANS

Among the most serious of the problems confronting the returning physician, as is already apparent, is the difficulty of securing suitable office space. In large communities, such as cities of over 100,000 population, the problem is apparently far more serious than in the smaller areas. In some larger cities physicians are even remodeling old houses into office space. At a meeting of the Board of Trustees of the American Medical Association in Chicago, members of the Board suggested that civilian physicians who have not been in military service be urged to offer available time and space, at least temporarily, to physicians who return from absences of two or three years in the service. Many a physician whose office is not fully utilized either in the morning or in the afternoon or even in the evening can make available time and space, as well as the use of his facilities to a returning physician, perhaps a member of his own hospital staff. This will enable the returning physician to get in touch with those whom he served previously and to begin rehabilitating himself in the practice of medicine before he has made a permanent choice of a location. The medical profession owes a large measure of gratitude to the 60,000 physicians who have given of themselves so freely and who have sacrificed so much for all of us. The least that can be done for such veterans is to make available to them an opportunity to begin the earning of a livelihood at the earliest possible moment.

DEFUNCT ORGANIZATIONS

A recent issue of the New York *Times* carried an advertisement, more than a page long, of the Chase National Bank. The announcement listed the names of persons or organizations of unknown address owning unclaimed funds of more than twenty-five dollars. Included in the list were the American Fund for French Wounded, the Friends of Belgium, the Committee for Dewey Arch, the Committee for Reception of Prince Henry, the National Sound Money League, the Babies Shelter Commission and the Non-Explosive Can & Device Company. No doubt the funds deposited for organizations like these were made with the best of intentions or eleemosynary motives. The absence of any claimant to the property is, however, a striking commentary on the facility with which new and poorly conceived organizations initiate their operations and the ease with which funds for almost any purpose can be obtained from credulous persons.

MEDICINE AND THE WAR

ARMY

TYPHOID REDUCED IN THE ARMED FORCES

As a result of use of the typhoid vaccine produced at the Army Medical Center, Washington, D. C., typhoid in the armed services has been reduced to less than 0.1 per cent. Sufficient vaccine to immunize a million persons a year is shipped out regularly in specially designed wirebound boxes, Col. S. D. Avery, chief of the division of biologic products, stated.

All Army, Navy, Coast Guard, Marine and Merchant Marine units overseas periodically receive yearly booster shots from the laboratory of the Army Medical Center. The Navy alone receives 15,000 bottles of typhoid vaccine monthly, shipped in special wirebound boxes perfected after thirteen years of research in packing and shipping by the U. S. Army Medical Department Professional Service School. The boxes, although dumped on beachheads during invasions, transported by jeep, donkey, camel or glider, delivered the glass bottled typhoid vaccine with virtually no breakage.

Wirebound boxes have also been designed by army medical men of the center to carry dysentery vaccine, a shigella typing kit that tests the type of dysentery, pollen extracts for the treatment of hay fever, Rh blood typing serum, live cultures and other biologic diagnostic reagents.

ARMY NURSE AWARDED BRONZE STAR

Capt. Ruth C. Tubergen, Army Nurse Corps, formerly of Elmhurst, Ill., was recently awarded the Bronze Star. According to the citation accompanying the award, "While on duty as chief nurse on the Army Hospital Ship *Emily H. M. Weder* from August 1944 to March 1945 she demonstrated outstanding qualities in support of combat operations. In the invasion of southern France, in the Italian combat zone and later in the landings on Leyte and Luzon in the Philippines a heavy responsibility was placed on the nursing service of this hospital ship. The excellent organization of the nursing service to meet the innumerable problems of severely wounded combat casualties was accomplished through her matchless energy and efforts. This entailed working day and night with little rest in dangerous water and under air attack over beachheads. Despite hardships created by tension over the battle area and the speed necessary to get the casualties aboard, she underwent fatigue and lack of proper rest to aid in the saving of lives and the maintenance of morale of the patients. Her achievements contributed unequivocally to the rapid recovery of many battle casualties and reflect great credit on the Nursing Service of the Medical Corps."

MOUNT SINAI HOSPITAL OVERSEAS UNIT RETURNS FROM FRANCE

After more than two years abroad, the Third General Hospital (overseas Unit of the Mount Sinai Hospital, New York) recently returned to the United States on the S. S. *General Stewart*. Although some of the physicians have already been detached from the unit for specialized service elsewhere, Col. Herman Lande, who served at the start as its executive officer and finally as commanding officer, and Major Ruth Chamberlain, its chief nurse, returned with a group of officers and an almost complete roster of the nurses who joined the unit more than three years ago.

The Third General Hospital, organized in 1940, was called into active service in August 1942, at which time it included 55 doctors and 120 members of the nursing staff. The unit arrived in North Africa in May 1943 and was assigned to its first site of operation, a captured German military hospital near Bizerte, on July 10, 1943. Although it was originally meant to be a 1,000 bed hospital, an expansion tent unit providing for an additional thousand beds was immediately ordered and erected. During the first month of operation over 5,000 war wounded were admitted to the hospital; in addition, another 2,000 transient air evacuees were given medical and nursing care pending their evacuation to the rear. In May 1944 the unit was moved to Italy, where it turned former military barracks near Cassino, within sound of the battle, into a hospital in a short time and functioned throughout the Italian campaign. It landed in southern France on Sept. 29, 1944 as part of the 7th Army invasion and had operated at Aix-en-Provence since that date. Although organized as a 1,000 bed hospital, it rarely had less than 1,500 patients and treated as many as 2,000 at times. The hospital was formally relieved as of Aug. 27, 1945 and the personnel sailed for the United States on September 4.

DENTAL CORPS OFFICER AWARDED BRONZE STAR

Major Denton J. Rees, formerly of Oregon City, Ore., was recently awarded the Bronze Star. The citation accompanying the award read that, "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945, he performed outstanding services as mess officer and general supply officer for the camp. He voluntarily assumed the most difficult of duties, that of supervising the preparation and equitable distribution of meager and nutritionally improper rations among his fellow prisoners. Faced with noxious sanitary and housing conditions and the constant danger of food contamination by insects and vermin, he saw that the enemy-provided starvation rations were prepared in a manner as healthful and palatable as possible. His initiative and just administration were an inspiration to the entire prison camp."

ARMY AWARDS AND COMMENDATIONS

Major Benjamin Dickstein

The Soldier's Medal was recently awarded to Major Benjamin Dickstein, formerly of Philadelphia. According to the citation "Major Benjamin Dickstein, Medical Corps, Army of the United States, when flight surgeon of the 52d Troop Carrier Squadron, I Troop Carrier Command, heroically went to the rescue of the crew and passengers of a troop carrier transport which crashed and burned in a night takeoff, Sept. 16, 1942, at Pope Field, Fort Bragg, North Carolina. At the risk of his life he repeatedly entered the burning wreckage and with the assistance of one other extricated 14 injured and helpless men. A short distance from the wreck he administered first aid to the badly injured victims, continuing with this work even when the airplane exploded and showered him with burning débris. Major Dickstein, with great courage and complete disregard for personal safety, saved the lives of several of his comrades." Dr. Dickstein graduated from the University of Pennsylvania School of Medicine Philadelphia, in 1940 and entered the service Aug. 1, 1942.

Brigadier General Roy C. Heflebower

The Legion of Merit was recently awarded to Brig. Gen. Roy C. Heflebower, formerly of Washington, D. C. "From November 1941 to March 1945," the citation read, "he commanded the Medical Replacement Taining Center (later the Army Service Forces Training Center) at Camp Barkeley, Texas, the largest installation of its kind in our history. With unusual foresight and thorough understanding of medical requirements he promptly developed a training program, instructing teaching personnel while producing sorely needed medical units. He exerted tireless effort to insure the com-

plete preparation of medical personnel for service with combat troops, a duty where their presence raised morale as well as saved lives. Many units were made ready for overseas assignments under his supervision, more than 130,000 soldiers were given individual training and over 11,900 officer candidates were qualified for appointment in the Medical Administrative Corps. The record of exceptional achievement by the Medical Department in all theaters of operations and the numerous commendations it has received were in great measure made possible by his outstanding ability to produce superior personnel and his skilful, energetic administration of his training program." General Heflebower graduated from the George Washington University School of Medicine, Washington, D. C., in 1906 and has been in the service since April 10, 1910.

Lieutenant Joshua P. Sutherland

The Bronze Star was recently awarded to Lieut. Joshua P. Sutherland, formerly of Haysi, Va., who "performed meritotorious service for his fellow prisoners of war while confined at the German Stammlager IXB Prisoner of War Camp from December 1944 to April 1945. When offered an opportunity of moving to an officers' camp he voluntarily remained at this enlisted men's camp, realizing that the Germans had no intention of rendering medical service to the sick and dying men. Conditions under which these men lived were deplorable. The building used as a hospital was full of lice and bedbugs, poorly lighted and littered with rubbish, filth and disease. The Germans refused all requests for medicines, bandages, sedatives and sulfonamide drugs with which to administer medical aid. Working on a starvation diet and despite these deplorable conditions, he never faltered in his unstinting service to the 3,000 fellow prisoners whom he cared for during this period. When the German authority disclosed plans for evacuating this camp by forced marches he, through his remarkable tact and powers of persuasion, convinced the Nazis of the dire consequences of such a move and delayed it long enough to permit the camp to be liberated by American forces." Dr. Sutherland graduated from the University of Virginia Department of Medicine, Charlottesville, in 1943 and entered the service Feb. 11, 1944.

Captain Harry M. Brown

Capt. Harry M. Brown, formerly of Cicero, Ind., was recently awarded the Bronze Star. Accompanying the award was a citation, according to which, "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945, he performed outstanding services as ward surgeon and chief of the eye, ear, nose and throat service in a general hospital. With improvised, makeshift equipment and depleted medical supplies he labored against great odds and on a starvation diet. During an epidemic, the cause of which was unknown, he remained on duty day and night without relief to make more than eighty visual field examinations in an effort to determine the cause and possible cure for this strange disease. His devotion to duty, skill and initiative were highly instrumental in alleviating the suffering, saving the lives and maintaining the morale of his fellow prisoners of war." Dr. Brown graduated from the Indiana University School of Medicine, Indianapolis, in 1939 and entered the service April 5, 1941.

Captain Andrew Kerr Jr.

The Silver Star was recently awarded to Capt. Andrew Kerr Jr., formerly of Rochester, N. Y., who distinguished himself by gallantry in action against the enemy on April 17, 1945 in the vicinity of Aschersleben, Germany. When a motorized patrol encountered severe small arms fire and suffered numerous casualties, Captain Kerr answered the call for litter bearers by leading a group of aid men forward. Disregarding personal safety, he moved about the fire swept area, administering aid to the wounded, moving them to sheltered positions and supervising their evacuation. His courageous actions in defiance of danger, his aggressiveness and his devotion to duty were instrumental in saving many lives and reflect the high traditions of the armed forces. Dr. Kerr graduated from Harvard Medical School, Boston, in 1941 and entered the service Jan. 25, 1944.

Major William P. Rhudy

The Bronze Star was recently awarded to Major William P. Rhudy, formerly of Penn Yan, N. Y., who, "as chief of the surgical service, U. S. Army Hospital Ship *Emily H. M. Weder,* rendered conspicuous and meritorious service from August 1944 to March 1945 in direct support of amphibious landings on enemy shores. In the initial operation in southern France this ship was assigned the task of evacuating the sick and wounded directly from the beachhead. Anticipating a heavy load of casualties under the most trying conditions, he organized the surgical service into three surgical combat teams. Under his personal supervision these teams performed 116 operations of all types, working day and night, under combat conditions with air activity harassing the beachhead and in waters not completely cleared of minefields. Again in the Italian combat zone this officer distinguished himself by his professional deftness in performing vital surgical operations. Later in the Leyte and Luzon operations he applied the surgical experience gained in southern France and in Italy to the severely wounded casualties, with distinctive results. His surgical contribution to the efficient operation of this hospital ship during these critical periods saved many lives and greatly enhanced the recovery of patients transported to rear base echelons." Dr. Rhudy graduated from Indiana University School of Medicine, Indianapolis, in 1924 and entered the service Aug. 19, 1942.

Major Charles J. Katz

The Bronze Star was recently awarded to Major Charles J. Katz, formerly of Oak Park, Ill., who, "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945," according to the citation accompanying the award, "performed outstanding services as surgeon, neuropsychiatric ward, in a general hospital. With improvised, makeshift equipment and depleted medical supplies, he labored against great odds and on a starvation diet. In addition to his neuropsychiatric tasks he served as medical supply officer, a position which required the use of great diplomacy in maintaining endurable relationships with the Japanese. His activity in conserving the mental health of his comrades under the depressing conditions of constant sickness, malnutrition and poor sanitation was an outstanding contribution to the well-being of his fellow prisoners of war." Dr. Katz graduated from Rush Medical College, Chicago, in 1937 and entered the service Sept. 25, 1940.

Major Ralph E. Hibbs

The Bronze Star was recently awarded to Major Ralph E. Hibbs, formerly of Oskaloosa, Iowa, who, "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945," according to the citation, "performed outstanding services as surgeon of the tuberculosis ward in a general hospital. With improvised makeshift equipment and depleted medical supplies, he labored against great odds and on a starvation diet. In addition to his medical tasks, he served as adjutant and registrar of the prison camp, assisting the commanding officer in administration and the maintenance of discipline in a most difficult environment. By his superior administrative ability and unusual devotion to duty he inspired his fellow prisoners of war." Dr. Hibbs graduated from the State University of Iowa College of Medicine, Iowa City, in 1936 and entered the service Feb. 20, 1941.

Captain Joseph R. Jehl

The Bronze Star was recently awarded to Capt. Joseph R. Jehl, formerly of Clifton, N. J., for "distinguishing himself by meritorious service in connection with military operations against an enemy of the United States from Oct. 19, 1944 to Jan. 5, 1945 in Holland, Germany and Belgium. In the hard fought engagements in Holland, Germany and Belgium Captain Jehl performed outstandingly as battalion surgeon. By introducing a system of interviews for reinforcements, he made possible their assignment to suitable posts, which resulted in a sharp reduction in cases of combat exhaustion. During the fierce action at St. Vith he repeatedly braved death to care for the wounded of many of our units. Captain Jehl's great courage and skill are worthy of the highest praise."

Dr. Jehl graduated from New York University College of Medicine, New York, in 1932 and entered the service in September 1942.

Colonel William C. Munly

The Legion of Merit was recently awarded to Col. William C. Munly of Washington, D. C., in recognition of exceptionally meritorious services during the Italian campaign. The citation read, in part, "Colonel Munly brought a long experience in military medicine and a thorough familiarity with conditions in the theater to the preparation of a series of brilliant papers reporting medical problems in Italy. By virtue of his work, hospitalization was so disposed that all areas and all commands received adequate facilities. His reports provided the indispensable basis for many improvements in venereal disease control, in the health of the command, in sanitary conditions both local and regional and in the efficiency of the medical service rendered United States forces in the Mediterranean theater." Dr. Munly graduated from the University of Oregon Medical School, Portland, in 1916 and entered the service in 1917.

NAVY

CONTRACTS VALUED AT $11,500,000 TERMINATED BY BUREAU OF MEDICINE AND SURGERY

Victory over Japan found the Bureau of Medicine and Surgery holding $40,000,000 in contracts for equipment, supplies, drugs and other material requirements, according to Vice Admiral Ross T. McIntire, Surgeon General of the Navy. Undelivered portions totaled approximately $29,000,000, of which $11,500,000 are being terminated.

An appreciable proportion of the material for which contracts are being terminated was not scheduled for delivery for several months, and this will minimize disrupting effects on the manufacturing and fabricating plants involved.

Another alleviating factor, Dr. McIntire pointed out, is that many of the cutback contracts are for drugs, biologic products, chemicals, surgical instruments, dental items and other supplies that can be channeled speedly into civilian markets. Most of the items for which completion and delivery are being canceled outright were of a special character intended for use in amphibious warfare and possess little or no value outside the armed forces.

Contracts aggregating $17,948,000, or nearly one half of the original dollar value of the commitments, were for the more staple types of supplies and equipment whose requirements are not affected by the victory over Japan. Manufacture and delivery of the undelivered portion, totaling $13,110,000, will be carried to completion.

In the "strictly for war" category were contracts having a face value of approximately $10,000,000, of which 70 per cent were still in the factory stage on August 14, the day President Truman announced surrender of the Japanese. Commitments for all of this undelivered material are being terminated.

In surgical supplies the termination amounted to $2,941,000. For surgical instruments and appliances which, in the main, were contracted for when invasion of Japan seemed inevitable, $1,333,000 in contracts have been terminated or canceled; hospital and nursing equipment, $1,912,000; office supplies, $6,000; office equipment, $19,000; dental supplies, none; dental equipment, $164,000; field supplies and equipment, $1,524,000; books, $13,000.

Besides dental supplies, procurement items unaffected by the terminations and cutbacks are equipment and supplies required for the spectacle and optical program of the Medical Department, mortuary equipment and mortuary supplies.

NAVY AWARDS AND COMMENDATIONS

Captain Frank P. Kreuz Jr.

Capt. Frank P. Kreuz, Washington, D. C., was recently awarded the Bronze Star Medal in recognition of his achievement as senior medical officer aboard the U. S. S. *Washington* while in the rank of commander. The citation read "For meritorious achievement as senior medical officer serving on board the U. S. S. *Washington* in connection with operations against enemy Japanese forces in the Pacific war area from November 1943 to February 1945. Concerned solely with the health and well-being of our men, Commander Kreuz maintained the ship's medical department at the peak of efficiency despite the difficulties encountered as the *Washington* participated aggressively in major combat operations. Directing all activities under his control with dependable judgment and resource, he initiated and constantly regulated vital health measures to meet the changing conditions prevailing on a combatant vessel, efficiently supervised the care of our sick and wounded and performed many difficult surgical operations with expert professional skill. A wise and practical counselor, understanding the peculiar mental and physical needs of men functioning under the strain of continuous combat, Commander Kreuz, by his outstanding ability and tireless efforts, insured the sound physical condition of the ship's company throughout a prolonged period of intensive operations. His cool courage and gallant acceptance of extreme danger and hardship served as an inspiration to all on board the *Washington* and upheld the highest traditions of the United States Naval Service." Dr. Kreuz graduated from Northwestern University Medical School, Chicago, in 1931 and entered the service. Dr. Kreuz is now serving in the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Lieutenant Commander Harold W. Fleischer

Lieut. Comdr. Harold W. Fleischer, formerly of Washington, D. C., was recently awarded the Bronze Star for "heroic achievement as medical officer on board the U. S. S. *Gambler Bay* when that vessel was sunk by enemy gunfire in October 1944. The citation accompanying the award read "For heroic achievement as medical officer serving on board the U. S. S. *Gambler Bay* when that vessel was sunk by enemy gunfire during an engagement with major units of the Japanese fleet in the battle off Samar, Philippine Islands, on Oct. 25, 1944. With his ship disabled and forced to fall back in formation as a result of several hits from the terrific pounding by hostile cruisers when the Japanese steamed through San Bernardino Strait and attacked his task group with devastating force, Lieutenant Commander Fleischer repeatedly risked his life to care for the many casualties struck down during the fierce action. Despite the imminent danger of explosion, he fearlessly proceeded through burning smoke-filled areas to direct crew members in administering first aid and removing wounded from the stricken compartments, carrying on with consistent determination and aggressiveness until the abandon ship order was given. Adrift at sea for two days following the disaster, he continued to minister to survivors with unfailing efficiency, rendering valiant service and holding the loss of life to a minimum. By his keen foresight and superb professional ability in training the entire ship's company in fundamentals of first aid prior to enemy action, Lieutenant Commander Fleischer contributed to the saving of many men, and his outstanding fortitude and self-sacrificing efforts throughout upheld the highest traditions of the United States Naval Service." Dr. Fleischer graduated from Boston University School of Medicine in 1937 and entered the service June 24, 1942.

DISPOSITION OF STUDENTS ON ACTIVE DUTY IN NAVY V-12 PROGRAM

A recent release from the Navy Department, Bureau of Naval Personnel, contains the revision of Navy V-12 Bulletin No. 322 concerning disposition of students on active duty in the Navy V-12 Program. Medical, dental, theological, premedical, predental and pretheological students will be released to inactive duty under the terms of reference (a), as previously interpreted, only on the stipulation that they continue their medical, dental, theological, premedical, predental or pretheological training.

PHYSICIANS SEPARATED FROM SERVICE

RELEASES REPORTED FROM ARMY, NAVY AND PUBLIC HEALTH SERVICE PRIOR TO SEPTEMBER 1

Physicians	Date Discharged
Alabama	
Boudreau, Floyd T.	
Britton, James W.	
Gary, Robert E.	May 1945
Simpson, Wyatt C.	July 1945
Arizona	
Dysart, Palmer A.	April 1945
Francis, James D.	May 1945
Merrill, Marriner W.	July 1945
Arkansas	
Kelly, Miles F.	June 1944
Lawson, Dwight	June 1943
Leverett, Charles G.	February 1945
Massey, Lorenzo D.	June 1945
Miller, John H.	March 1945
Taylor, Robert L.	March 1945
California	
Barondes, Royal D.	April 1945
Berndt, Allen E.	April 1945
Butt, Edward M.	
Crandall, Frank G. Jr.	June 1945
Drew, John F.	January 1945
Elgin, James C.	June 1945
Epstein, Ervin H.	June 1945
Fields, H. M.	May 1945
Fiske, Leigh G.	July 1945
Geisler, William H.	June 1945
Goggin, Chester W.	June 1945
Grow, Walter L.	
Harris, Earle K.	December 1944
Hills, Clarence B.	March 1945
Hunter, James M.	March 1945
Johnson, William M.	February 1945
Kanner, Harry M.	July 1945
Knott, Norman L.	June 1945
Lasky, Irving I.	June 1945
McPherson, Henry A.	
Morris, Samuel A.	March 1945
Platt, Herman	June 1945
Quinlan, John F.	June 1945
Rivera, Gabriel A.	June 1945
Seeley, Leslie J.	May 1945
Shachtman, Joseph M.	June 1945
Smith, Sydney K.	December 1944
Steinbach, Howard L.	July 1945
Waniata, George N.	December 1944
Werner, Samuel	June 1945
Whieldon, John A.	April 1945
White, Wendell W.	December 1944
Colorado	
Baker, William N.	April 1945
Bonham, Claude D.	April 1945
Orsborn, George Jr.	May 1945
Peake, William M.	
Prior, Frank H.	June 1945
Connecticut	
Breck, Charles A.	June 1945
Dean, Stanley R.	April 1945
De Luca, Joseph	
Eskwith, Irwin S.	June 1945
Gissler, Norman E.	February 1945
Grigas, John E.	May 1945
Hall, Wendell C.	March 1945
Hennessy, James J.	
Kennedy, William C.	January 1945
Knepp, James W.	August 1944
Lawless, Thomas F. Jr.	March 1944
Lo Vetere, Angelo A.	June 1945
Mathews, Frank P.	December 1944
Mellion, Jacob	March 1945
Padula, Vincent D.	February 1945
Parlato, Harry A.	June 1945
Rapp, Albert G.	
Reichenbach, Frank.	December 1944
Connecticut—Continued	
Robinson, Norman E.	April 1945
Sullivan, Arthur F.	June 1945
Ward, James P.	January 1945
Warren, Frank O. Jr.	May 1945
District of Columbia	
Adams, Charles F.	March 1945
Butler, De Ruyter A.	June 1945
Goldson, Vernon F.	June 1945
Higgins, Eugene W.	December 1944
Irving, Richard H.	April 1945
Tamasi, Joseph J.	May 1945
Florida	
Adler, Lawrence	April 1945
Ashton, Wilbur L.	April 1945
Auslander, Harold P.	December 1944
Bichard, Phillip M.	December 1944
Carroll, George F.	
Cole, Richard K.	
Freeman, Jaul L.	January 1944
Grable, James S.	April 1945
Griggs, Thomas S.	December 1944
Hardie, Dan E.	May 1945
Lovejoy, Marion A.	
Martin, Leldon W.	May 1945
Pennington, Luther T. Jr.	June 1945
Safer, Jacob V.	March 1945
Stewart, Edgar A.	June 1945
Georgia	
Barfield, Hugh H.	June 1945
Bradford, Henry C.	January 1944
Clark, John A.	October 1943
Dow, William S.	March 1945
Farmer, Myron H.	
Gallis, Anthony H.	May 1945
Hutchison, Sam L.	
Peschau, John B. Jr.	February 1945
Swanson, Homer S.	May 1945
Watts, John W.	June 1944
Idaho	
Baldeck, Joseph E.	June 1944
Hegstead, Ralph B.	February 1945
Illinois	
Ajalat, Mitry P.	May 1945
Baumann, Charles H.	
Blatchford, Frank W. Jr.	
Bliwas, Arnold	March 1945
Bock, Walter A.	May 1945
Burley, Robert D.	
Citron, Robert R.	July 1945
Del Chicca, Silvio	June 1945
De Pinto, Dominic A.	April 1945
Dvorak, Emanuel R.	April 1945
Effron, David V.	June 1945
Eisenstein, Edward	June 1945
Ettinger, Jerome	May 1945
Fauley, Gordon B.	May 1945
Ferris, William T.	December 1944
Fostvedt, Gerald A.	December 1944
Franklin, Charles E.	May 1945
Green, Emanuel	March 1945
Hoffman, Philip	March 1945
Jablonowski, Aleksande J.	
Kaiz, Seymour P.	December 1944
Kaufman, Saul D.	June 1945
Knewitz, Ralph	July 1945
Kremens, Victor	June 1945
Levenson, Joseph M.	July 1945
Latz, Leo	May 1945
Mackiewicz, William S.	May 1945
Madden, Earl E.	January 1945
McDaniel, Paul H.	April 1945
McGrath, Philip R.	June 1945
McLean, Daniel R.	June 1945
Illinois—Continued	
McNeil W. Jr.	December 1944
Ocasek, Miles F.	May 1945
Owings, Jerry R.	December 1944
Parker, Meyer H.	May 1945
Powell, John R.	June 1945
Rogers, James C.	
Sandberg, Ivan M.	April 1945
Schaffer, Joseph E.	May 1945
Shaw, Maurice M.	July 1945
Slatin, Louis	
Straus, Francis H.	June 1945
Tavris, Hyman	May 1945
Tresley, Ira J.	April 1945
Wadsworth, Harold V.	December 1944
Weiskopf, Henry S.	June 1945
Wieneke, Carter H.	April 1945
Young, Leslie W.	
Zanette, Alfred A.	April 1945
Indiana	
Baltes, Joseph H.	May 1945
Eisaman, Cecil L.	March 1945
Haffner, Herman G.	June 1945
Levi, Leon	April 1945
Mendenhall, Clarence D.	April 1945
Quigley, Joseph B. Jr.	April 1945
Schiller, Herbert A.	April 1945
Iowa	
Hale, Albert E.	March 1945
Hess, Ardo M.	
Kelly, Dennis H.	May 1945
Matt, Wayland P.	June 1945
Smith, Herbert J.	April 1945
Vest, William M.	May 1945
Wolfe, Wilson C.	December 1944
Kansas	
Conklin, Kenneth E.	April 1945
Craig, Paul E.	June 1945
Foutz, Homer S.	April 1945
Graves, Louis G.	April 1945
Gripkey, Clarence A.	March 1945
Mott, James M.	June 1945
Nash, Newman C.	June 1945
Stotts, Charles S.	May 1945
Kentucky	
Downing, Robert E.	June 1945
Ellis, Edward W.	
Flaherty, Walter T.	June 1945
Hays, Jack D.	May 1945
Kash, Vernon O.	June 1945
Kennedy, Archibald D.	April 1945
Martin, William J.	
Zimmerman, Leo W.	July 1945
Louisiana	
Hirsch, Julian F.	April 1945
Howell, Robert P.	June 1945
Moran, James A.	
Percy, Archibald E.	April 1945
Thames, John T.	April 1945
Wickstrom, Jack K.	
Wilensky, Louis A.	December 1944
Maine	
McCarthy, Robert J.	June 1945
Michaud, Joseph H.	March 1945
Toussaint, Leonide G.	July 1945
Williams, Ralph E.	March 1945
Winchenbach, Francis A.	November 1945
Maryland	
Baxley, Joshua W.	December 1944
Day, Newland E.	March 1945
Geheber, Dean W.	May 1945
Hankin, Samuel J.	December 1944
Young, Samuel F.	April 1945

PHYSICIANS SEPARATED FROM SERVICE

Physicians	Date Discharged
Massachusetts	
Bailey, Frederick J.	
Barger, Abraham C.	June 1945
Charron, Rosario C.	December 1944
Faxon, Henry H.	July 1945
Grossfeld, Seymour S.	July 1945
Hajjar, Solomon G.	May 1945
Higgins, Walter D.	May 1945
Kirk, Grover C.	March 1945
Lavoie, Aurel G.	April 1945
McKoan, John W. Jr.	April 1945
Merrill, Bruce R.	April 1945
Meyers, Marvin T.	April 1945
Orlansky, George J.	May 1945
Schube, Purcell G.	March 1945
Schwartz, Abraham L.	April 1945
Shull, John C.	
Siegel, Lewis	April 1945
Smith, Hubert W.	June 1945
Vohr, Dorothy R.	July 1945
Weiss, William G.	July 1945
Michigan	
Armbruster, James W.	February 1945
Bates, Richard C.	April 1945
Berman, Sidney L.	
Boyt, Theodore	December 1944
Cawley, Edward P.	June 1945
Freid, Samuel	June 1945
Gill, Matthew J.	June 1945
Holmes, Roy H.	May 1945
Janci, Julius S.	May 1945
Nelson, Alvin T.	April 1945
Rahm, Lambert P.	May 1945
Reder, Benjamin	May 1945
Salowich, John N.	April 1945
Scharf, Lewis E.	May 1945
Skolnick, Max H.	June 1945
Woodford, Hackley	June 1945
Minnesota	
Elliott, William S.	
Gordon, Philip E.	April 1945
Keil, Marcus A.	July 1945
Miller, Harold E.	March 1945
Otten, Donald E.	April 1945
Pollard, Donald W.	April 1945
Trach, Benedict	April 1945
Williamson, George A.	
Mississippi	
Dorsey, Charles F.	
Hines, Merrell O.	August 1945
Mitchell, Charles B.	
Missouri	
Bangeman, John O.	June 1945
Davis, Phillips N.	March 1945
Dann, David S.	October 1942
Drasky, Stanley	July 1945
Eckert, Charles L.	July 1944
Gay, Lee P.	April 1945
Graham, Ottis L.	February 1944
Greenhouse, Jerome M.	April 1945
Hargrove, Fred T.	May 1945
Haw, Marvin T.	June 1945
Hook, Waller G.	February 1945
Leidler, Franz	May 1945
Mantz, Harry E.	May 1945
Martin, Thomas A.	May 1945
McCall, Wheeler S.	July 1945
Murphy, Robert J.	June 1945
Richman, Elmer	May 1945
Robb, Thomas P.	March 1945
Rodriguez, Hesiquio	June 1945
Rothman, David	February 1945
Saunders, Everett L.	April 1945
Satterfield, Benjamin W.	November 1944
Schaerrer, Hans	March 1945
Squibb, Joseph W.	May 1945
Taft, George H.	April 1945
Van Hook, Henry M.	April 1945
Whitener, Paul R.	May 1945
Nebraska	
Levine, Victor E.	January 1945
Merideth, John A.	June 1945
Price, Carroll P.	March 1944
Scott, Henry A.	February 1944
Teal, Frederick F. Jr.	February 1945
Zierott, Leroy L.	January 1945
New Hampshire	
De Veaux, Orwel F.	May 1945
Ferre, George F.	March 1945
Hamel, Paul R.	July 1945
Powers, Harris E.	
Powers, James J.	May 1945
Williams, Raymond A.	December 1944
New Jersey	
Adam, Stewart I.	January 1945
Adelman, Benjamin B.	May 1945
Artasersa, George V.	June 1945
Bleiberg, Jacob	June 1945
Boyd, James W.	March 1945
Cartisser, Joseph J.	April 1945
Colby, Maxwell X.	May 1945
Costa, Philip L.	April 1945
Eckhart, William V.	June 1945
Landry, Ernest J.	April 1945
Lang, Joseph	July 1945
Leff, William A.	June 1945
Levin, Murray	June 1945
Levy, David	June 1945
Lipton, Louis	April 1945
Mensch, Harvey G.	May 1945
Olpp, John L.	May 1945
Rineberg, Irving E.	December 1944
Strelinger, Alexander	June 1945
Stokes, James S.	April 1945
Yager, Jacob A.	May 1945
New Mexico	
Cassidy, Franklin C.	February 1944
Guilbert, Gerald D.	February 1944
New York	
Alexander, Carter M.	March 1945
Altman, Valadimir	May 1945
Basso, Donato E.	May 1945
Beaghler, Harry E.	December 1944
Bender, Michael N.	June 1945
Berk, Ralph	May 1945
Bernstein, Irving	December 1944
Blank, Julius M.	May 1945
Blum, Isador	June 1945
Broderick, Thomas C.	April 1945
Brown, James F.	
Chalecki, William E.	January 1945
Cheatham, Goode R.	May 1945
Core, Edwin R.	June 1945
Crater, Robert L.	July 1945
D'Albora, John B.	
Daversa, Benjamin	
De Bono, Mandel	May 1945
De Luca, Frank P.	May 1945
Ehrenpreis, Bernard	June 1945
Eller, William C.	May 1945
Ellis, John G.	December 1944
Fechtig, Frederick H.	June 1945
Fraad, Lewis M.	June 1945
Frank, Simon C.	June 1945
Governale, Vincent J.	July 1945
Grover, Milton M.	November 1944
Gurin, David	May 1945
Hansen, Wilhelm G.	June 1945
Harris, Bernard B.	April 1945
Harris, Maurice C.	May 1945
Hebert, Julien A.	July 1945
Heinlein, John A.	May 1945
Held, Edward C.	May 1945
Hoffman, John L.	
Hogg, Bruce M.	July 1945
Jacobs, Martin	April 1945
Jacobs, Norman F.	May 1945
Jensen, Leif G.	June 1945
New York—Continued	
Kalamarides, John J.	June 1945
Kinney, Richard A.	May 1945
Kurtz, Irving M.	July 1945
Kurzrok, Irving L.	May 1945
Labriola, Charles S.	April 1945
Lederman, Solomon J.	June 1945
Lercher, Lawrence	May 1945
Lickerman, Nathan	May 1945
Long, Rolfe D.	
Longstreth, Clyde M.	
Lossef, Samuel	May 1945
Low, Solas J.	May 1945
Lubenstein, Herman	May 1945
Mahady, Stephen C.	June 1945
Marangoni, Bruno A.	March 1945
McCann, William S.	
McCormick, Robert R.	January 1945
Milch, Elmer	January 1945
Mitchell, Roger S. Jr.	May 1945
Moran, William H.	
Myers, Lucien E.	March 1945
Narins, Samuel R.	May 1945
Netter, Frank H.	May 1945
Nocella, Rocco J.	April 1945
Okie, Melchior V.	May 1945
Osheroff, William	June 1945
Page, Robert C.	March 1945
Petti, George H.	April 1945
Podolsky, Edward	
Pomper, Irving	June 1945
Posner, Adolph	March 1945
Powers, Robert W.	April 1945
Prince, Arthur	May 1945
Rabson, Salem M.	November 1944
Rauch, Frederick M.	June 1945
Redston, Robert D.	April 1945
Reich, Paul F.	May 1945
Reichel, Emanuel L.	December 1944
Rhoads, Cornelius P.	May 1945
Rosenbluth, Milton B.	April 1945
Rosenthal, Abner H.	June 1945
Schram, Maxwell	March 1945
Schultz, Benjamin	May 1945
Secky, Harry J.	June 1945
Stein, Felix	July 1945
Strahl, Merton P.	June 1945
Tadross, Victor A.	March 1945
Weinstein, Max V.	May 1945
White, Abraham G.	May 1945
Wise, Charles S.	
Wolf, John S.	June 1945
Wormley, Lowell C.	May 1945
Zabner, Joseph	May 1945
North Carolina	
Bennett, John W.	December 1944
Cannon, Edward G.	March 1945
Fenner, Edwin F.	January 1945
Haar, Frederick B.	June 1945
Hardin, Parker C.	February 1945
Horger, Eugene L.	December 1944
Melton, Harry R.	September 1944
Murphy, Gibbons W.	March 1945
Newell, Hodge A.	February 1945
Phelps, John M.	
Pillsbury, Henry C.	
Riley, Philander C.	October 1943
Sykes, Joy V.	January 1945
Tyndall, Robert G.	March 1945
North Dakota	
Burke, Charles H.	
Ohio	
Anker, Harry	May 1945
Berlesky, Harry S.	June 1945
Bly, Frank H.	
Breuer, Alfred	June 1945
Cassady, Louis P.	January 1945
Coleman, Benjamin	September 1945
Davin, William A.	May 1945

PHYSICIANS SEPARATED FROM SERVICE

Physicians	Date Discharged
Ohio—Continued	
Ernstene, Arthur C.	
Fishman, David	May 1945
Gebauer, Paul W.	April 1945
Horton, Charles B.	March 1945
Hotz, Richard	April 1945
Janis, Edward C.	June 1945
Jones, Merrill F.	April 1945
Meany, Frank L.	June 1945
Obetz, Robin C.	December 1944
Pitcher, Carter L.	March 1945
Prather, David J.	November 1944
Reese, Harold J.	
Richards, Robert R.	April 1945
Rossen, Joseph M.	
Rubin, Nathan A.	
Runnels, Scott C.	June 1945
Sears, Clarence W.	January 1945
Smith, Earl M.	June 1945
Yost, Orin R.	July 1945
Oklahoma	
Dill, Francis E.	November 1944
Huggins, James R.	April 1945
Lyons, Mason R.	July 1945
Porter, Horace H.	January 1945
Tool, Charles D.	June 1945
Waltrip, Jesse R.	May 1945
Wildman, Stanley F.	July 1945
Oregon	
Bryan, Ray W.	December 1944
Carey, Leland O.	
Francis, Horace M.	June 1945
Kinney, Kenneth W.	
Mallory, Herbert C.	February 1944
Riedel, Henry F.	April 1945
Pennsylvania	
Anderson, William L.	June 1945
Banick, Vincent W.	May 1945
Bankert, Charles W.	June 1945
Connelly, William E.	May 1945
Crampton, Harrison F.	May 1945
Forrest, James F.	June 1945
Friedman, Paul S.	May 1945
Gelbert, Charles S.	April 1945
Gordon, Jacob M.	July 1945
Grandi, Joseph	May 1945
Herr, Paul S.	April 1945
Hinkson, Dehaven	June 1945
Hodgkinson, Cecil H.	June 1945
Kaplan, Isadore	March 1945
Katz, Seymour M.	July 1945
Klein, Harold H.	June 1945
Leibensperger, Edward S.	June 1945
Leonard, Charles L.	March 1945
Lipman, George S.	April 1945
McCarron, Joseph P.	April 1945
Meyer, Francis P.	June 1945
Moran, Timothy F.	April 1945
Nosal, Joseph L.	March 1945
Rothrock, Philip W.	June 1945
Rothrock, Vance M.	June 1945
Rusling, Robert S.	January 1945
Semansky, Edward J.	October 1944
Squillace, Gennarino	April 1945
Stayer, Frank I.	March 1945
Steinberg, Nathan	May 1945
Sweeney, Francis X.	December 1944
Varner, Winter T.	June 1945
White, William F.	June 1945
Rhode Island	
Bellaire, Evelyn M.	April 1945
Caldarone, Alfred A.	
Dunkle, Philip L.	May 1945
Fallon, James T.	February 1945
Geiger, Carl J.	February 1945
Jones, John P.	
Whipple, Richard K.	April 1945
South Carolina	
Blackshear, Everard	November 1943
Chance, Francis S.	May 1945
Fox, William M.	January 1945
Hyer, Yeadon M.	April 1943
Lyday, Wilson	August 1943
Millman, Milton	April 1945
Smith, Hugh P.	July 1945
South Dakota	
Brown, William E.	February 1944
Schuchardt, Irvin P.	January 1944
Williams, Forrest	March 1945
Tennessee	
Andrews, Charles G.	
Bell, Charles A.	April 1943
Black, Douglas B.	March 1945
Blalock, John F. Jr.	May 1945
Hernandez, Rafael	January 1945
Hudkins, Ira N.	
Lewis, Thomas J.	February 1944
Moskowitz, Henry	May 1945
Purvis, Robert A.	September 1943
Raines, Hugh R.	June 1945
Sheridan, William J.	February 1945
Webb, Charles H.	April 1945
Weinstein, Bernard M.	December 1944
White, Arthur L.	May 1945
Texas	
Behrns, Charles L.	May 1945
Bennett, Alfred C.	June 1945
Burns, Coleman C.	July 1945
Calvert, Hulon E.	March 1945
Furrh, Madison A.	May 1944
Glover, George E.	May 1943
Harkins, Thomas A. Jr.	June 1945
Hart, John A.	April 1945
Helfer, Lewis M.	May 1945
Henry, Harvey B.	
Hicks, Yale	July 1945
Hoffpauir, Alvin C.	March 1945
Jones, Thomas R.	January 1940
Kaliski, Sidney R.	May 1945
Khoury, Sam G.	February 1945
Knickerbocker, Bruce A.	
Leake, Bain	April 1945
Lively, William M.	July 1945
Luedemann, Waldo S.	March 1943
Marquart, Philip B.	June 1945
McPeak, Edgar M.	May 1945
Mitchell, William G.	April 1945
Moet, John A.	July 1945
Para, Andrew W.	February 1945
Pedigo, Paul C.	March 1944
Peticolas, John D.	February 1945
Putnam, Lincoln F.	June 1945
Richter, Louis B.	January 1943
Schultz, Jacob F.	April 1945
Sneed, William R.	March 1945
Sutton, Fred W.	February 1943
Thurman, George D.	May 1943
Turner, Carlos L.	April 1945
Utah	
Gessel, Udell M.	March 1945
Gudmundson, Arthur D. Jr.	May 1945
Marshall, John S.	June 1945
Seidner, Maximilia J.	May 1945
Vermont	
Crandall, Albert J.	
Virginia	
Bourne, George S.	February 1945
Brendler, Herbert	December 1944
Clark, Albert W.	December 1944
Claytor, Frank W.	June 1945
Driscoll, Thomas L.	April 1944
Ellis, William J.	March 1945
Hundley, John T.	March 1945
Virginia—Continued	
Jamison, Euell C.	February 1945
Junkin, William M.	April 1945
Kolmer, George A.	June 1945
Leary, Thomas J.	May 1944
Moore, Chimer D.	July 1945
Morrison, Robert L.	April 1945
Nelson, Kinloch	February 1944
Seawell, William A.	March 1945
Weems, Bliss K.	March 1945
Washington	
Clarke, Edmund R.	May 1945
Codling, John W.	April 1945
Cunningham, James E.	July 1944
Firestone, Charles	February 1945
Hebert, William S.	March 1945
MacKellar, Harry R.	October 1944
Marcy, Guy E. Jr.	June 1945
Meddis, Victor N.	December 1943
Nelson, Everett P.	May 1945
Newgord, Julius G.	March 1944
Nutter, Paul B.	March 1943
Olmsted, Bertram H.	June 1944
Parrott, Gordon M.	December 1944
Schaill, Clayton M.	June 1945
Spratt, Francis C.	April 1945
Steele, Andrew B.	May 1945
Stevens, Matthew W.	February 1945
Tashiam, Souren H.	February 1943
Towler, Harry H.	March 1945
West Virginia	
Bess, Robert W.	January 1945
Hunter, William B.	March 1945
Kennedy, John A.	February 1944
Laird, Thomas K.	May 1943
Leeson, Lawrence R.	June 1945
McIlvain, William E.	June 1945
Nutter, Edgar V.	April 1943
Post, Donald M.	March 1945
Waldock, James L.	April 1945
Weinstein, Stanley	May 1945
Wright, William B.	March 1945
Wylie, Ward	February 1945
Wisconsin	
Boersma, John J.	
Bussey, Arthur D.	February 1945
Conroy, Martin P.	May 1945
Dietrich, Hervey W.	June 1945
Enright, John A.	February 1945
Lang, Richard J.	
Lavine, Max M.	February 1945
Lieffert, William C.	
Peterson, Stanley C.	June 1945
Peyton, Lewis T.	May 1943
Pohle, Frederick J.	April 1945
Schoenenberger, Anton P.	June 1945
Wendt, William P.	May 1945
Zaun, John J., Jr.	June 1944
Wyoming	
Arvin, Garland C.	February 1945
Coleman, William R.	March 1945
McEnery, Douglas W.	January 1945
Stack, Bernard D.	April 1945
Yoder, Franklin D.	May 1945
Canal Zone	
Held, Burt	February 1945
Hawaii	
Barrow, Llewellyn L.	February 1944
Fronk, Clarence E.	
Macklin, Walter F.	October 1943
Wilbar, Charles L., Jr.	June 1943
Philippines	
Hale, Robert A.	July 1944
Puerto Rico	
Susoni, Antonio H.	January 1945

MISCELLANEOUS

FELLOWSHIPS IN PUBLIC HEALTH AVAILABLE TO VETERANS

The New York State Department of Health has available a limited number of fellowships for physicians desirous of equipping themselves with the necessary field and academic experience for the practice of civilian public health on a full time basis. Six to twelve months of orientation and field work are provided under the guidance of experienced district state health officers followed by an academic year at a postgraduate school of public health where the master's degree in public health is earned. Fellowship provisions are generous and include tuition. Those completing the training are professionally qualified for appointment on the staff of most local and state health departments.

Applicants must possess certain basic qualifications, among which are United States citizenship, graduation from a medical school approved by the American Medical Association, internship of at least one year's duration in a general hospital approved for internship by the American Medical Association, and license to practice medicine in New York State or eligibility to take the examination to obtain such license. The upper age limit is 35 years.

Physicians interested in making application for a fellowship should write to the State Department of Health, Albany 1, N. Y.

WARTIME GRADUATE MEDICAL MEETINGS

California

A. S. F. Regional Station Hospital, March Field: Tumor Pathology, Dr. Edward Butt, October 16.

U. S. Naval Hospital, Santa Margarita Ranch, Oceanside: Penicillin in the Treatment of Syphilis and Gonorrhea. Lieut. Comdr. W. W. Duemling, October 11; Neurosurgery, Capt. Everett Dickinson, October 25.

U. S. Naval Hospital, Long Beach: The Streptococcus Problem, Lieut. Comdr. George R. Underwood, October 17.

U. S. Naval Hospital, Corona: Burns, Capt. H. T. D. Kirkbaum, October 11; False Biologic Reactions, Major Mark Beam, October 25; Allergies, Major Iredell Hinnant, October 25.

Letterman General Hospital, San Francisco: The Male Hormone: Clinical Indications and Mode of Administration, Dr. Hans Lisser, October 13.

Station Hospital, Camp Stoneman, Pittsburg: Suppurations of the Chest, Dr. Clayton G. Lyon, October 20.

Hammond General Hospital, Modesto: Diagnosis and Surgical Treatment of Brain Tumors, Dr. Edwin B. Boldrey, October 21.

Station Hospital, Fort Ord: Hemorrhagic States, Dr. Paul M. Aggeler, October 27.

Regional Station Hospital, Oakland: The Use of Artificially Radioactivated Elements in Diagnosis and Therapy, Dr. Bertram V. Low-Beer, October 10.

New Mexico

Bruns General Hospital, Santa Fe: Symposium on Surgical Conditions of the Hand—Introduction of Subject: Major Frederick J. Fischer. Guest speaker, Major Lot D. Howard Jr., October 3. Symposium on the Pathogenesis of Tuberculosis—Introduction of Subject: Col. George J. Kastlin. Guest speakers, Drs. Arnold R. Rich, J. Burns Amberson and Col. Esmond R. Long, October 3. Symposium on Pulmonary Efficiency—Introduction of Subject: Major George C. Owen. Guest speakers, Drs. Andrew Cournand and Herbert C. Maier, October 4. Symposium on Sarcoidosis—Introduction of Subject: Major Samuel I. Kooperstein. Guest speakers, Drs. Arnold R. Rich, I. Snapper and J. Burns Amberson, October 4. Symposium on Surgical Diseases of the Spleen and Liver—Introduction of Subject: Dr. Kenneth E. Fry. Guest speaker, Dr. Allen O. Whipple, October 5. Symposium on Disseminated Vascular Disease—Introduction of Subject: Major Erich P. Hausner. Guest speakers, Drs. Arnold R. Rich and I. Snapper, October 5.

Pennsylvania

U. S. Naval Hospital, Philadelphia: Results of Penicillin Therapy of Syphilis in the European Theater, Col. Donald M. Pillsbury, October 5; Recent Advance in the Treatment of Acute Intestinal Obstruction, Dr. E. L. Eliason, October 26.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

ILLINOIS

Alexian Brothers Hospital, Chicago. Capacity, 261; admissions, 5,487. Brother Vincent, R.N., Superintendent (interns).

Women and Children's Hospital, Chicago. Capacity, 155; admissions, 3,538. Mrs. Edna H. Nelson, R.N., Superintendent (woman intern, October).

INDIANA

Lafayette Home Hospital, Lafayette. Capacity, 155; admissions, 3,751. Mr. T. E. Berg, General Manager (2 residents, mixed service).

KANSAS

University of Kansas Hospitals, Kansas City. Capacity, 400; admissions, 7,606. Dr. J. Harvey Jennett, Director (resident—anesthesia).

MICHIGAN

Saginaw General Hospital, Saginaw. Capacity, 151; admissions, 4,024. Mr. R. E. Raper, Superintendent (interns).

NEW YORK

Meadowbrook Hospital, Hempstead. Capacity, 275; admissions, 5,000. Dr. A. J. McRae, Superintendent (3 interns, April 1, 1946).

OKLAHOMA

University Hospitals, Oklahoma City. Capacity, 500; admissions, 6,610. Mr. Paul Fesler, Administrator (intern, October).

TENNESSEE

Nashville General Hospital, Nashville. Capacity, 337; admissions, 6,586. Mr. U. Phillips, Administrator (resident—ophthalmology-otolaryngology).

WEST VIRGINIA

Charleston General Hospital, Charleston. Capacity, 380; admissions, 10,439. Dr. John E. Cannaday, Director (interns).

CHINESE MEDICAL TRAINING PROGRAM OF UNRRA

Dr. Leo Eloesser, who for more than thirty years was clinical professor of surgery at Stanford University, San Francisco, was recently assigned as teaching specialist in surgery for the Chinese medical training program of the United Nations Relief and Rehabilitation Administration.

The medical training project, which is part of UNRRA's relief program in China now rapidly getting under way, was planned jointly by UNRRA and CNRRA—the Chinese government relief agency—to train on a short term basis all types of workers to be used in emergency medical relief units. A detailed plan of operation for an emergency field medical service, which will utilize the trainees, has also been worked out by CNRRA and the Chinese National Health Administration.

Dr. Eloesser graduated from the University of Heidelberg, Germany, in 1907. He served as military surgeon in the United States Army in World War I.

APPOINTED DEPUTY DIRECTOR OF HEALTH OF UNRRA

Dr. A. Hughes Bryan, formerly of Chicago, was recently appointed deputy director of health of the United Nations Relief and Rehabilitation Administration to succeed Dr. James A. Crabtree, who resigned effective September 10 to return to his duties with the U. S. Public Health Service. Dr. Bryan joined UNNRA in July 1944. Before his current appointment he was successively chief of the Nutrition Section and chief of Field Operations and Personnel in the Health Division.

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion. The Report of the Secretary, additional sections of the Report of the Board of Trustees and reports of some councils, bureaus and departments will appear in subsequent issues of The Journal.—Ed.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The Journal of the American Medical Association

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has adapted its pages to the needs of our country during the war period. A special section devoted to Medicine and the War has featured the work of the medical profession in the armed forces. Increasingly the pages of THE JOURNAL have reflected current interest in social and economic problems related to medical practice. The prestige of THE JOURNAL is recognized by innumerable comments on items contained in its columns appearing in the newspaper and periodical press not only of this nation but of all the world.

Because of restrictions on paper supplies, no special effort to secure subscriptions was made in 1944; even so, 5,148 names were added to the mailing list during the year, largely because of increased numbers of subscriptions entered through the Office of the Surgeons General of the Army and Navy.

The net paid weekly average circulation in 1944 was 109,828, as compared with 103,733 in 1943. The weekly average of copies printed during 1944 was 111,386.

The accompanying table 1 shows the number of Fellows and subscribers on the mailing list of THE JOURNAL as of

TABLE 1.—*Approximate Count of Fellows and Subscribers on The Journal Mailing List Jan. 1, 1945, Showing Gain or Loss*

States	Fellows	Subscribers	Totals	Gain	Loss
Alabama	554	370	924	..	42
Arizona	234	156	390	..	12
Arkansas	360	268	628	15	..
California	4,741	4,475	9,216	616	..
Colorado	568	397	965	..	33
Connecticut	936	777	1,713	14	..
Delaware	110	91	201	..	..
District of Columbia	702	1,030	1,732	95	..
Florida	841	624	1,465	..	27
Georgia	703	656	1,359	..	13
Idaho	143	95	238	..	26
Illinois	3,734	3,289	7,023	133	..
Indiana	1,392	819	2,211	..	41
Iowa	992	426	1,418	..	26
Kansas	724	346	1,070	..	25
Kentucky	628	461	1,089	..	..
Louisiana	682	605	1,287	..	81
Maine	292	162	454	..	45
Maryland	914	1,059	1,973	133	..
Massachusetts	2,358	1,929	4,287	9	..
Michigan	1,957	1,693	3,650	..	20
Minnesota	1,180	780	1,960	80	..
Mississippi	312	260	572	..	90
Missouri	1,503	1,194	2,697	1	..
Montana	174	99	273	..	20
Nebraska	540	381	921	19	..
Nevada	62	48	110	..	..
New Hampshire	231	115	346	..	4
New Jersey	2,035	1,511	3,546	..	49
New Mexico	158	114	272	..	12
New York	9,596	8,627	18,223	1,758	..
North Carolina	849	776	1,625	..	20
North Dakota	182	89	271	..	..
Ohio	3,034	1,740	4,774	28	..
Oklahoma	583	384	967	..	27
Oregon	417	397	814	..	61
Pennsylvania	4,882	3,485	8,367	282	..
Rhode Island	321	219	540	30	..
South Carolina	403	304	707	..	53
South Dakota	171	110	281	..	18
Tennessee	701	691	1,392	..	6
Texas	1,946	1,482	3,428	..	60
Utah	237	183	420	..	7
Vermont	167	104	271	25	..
Virginia	1,032	777	1,809	9	..
Washington	826	576	1,402	..	115
West Virginia	534	308	842	..	4
Wisconsin	1,210	705	1,915	12	..
Wyoming	92	47	139	..	3
U. S. Army	...	2,678	2,678	602	..
U. S. Navy	...	2,500	2,500	1,000	..
U. S. P. H. S.	...	120	120	..	32
Alaska	17	28	45	..	12
Canada	12	1,108	1,120	97	..
Cuba	4	339	343	51	..
Hawaii	100	123	223	10	..
Mexico	9	337	346	82	..
Panama	25	44	69	..	5
Puerto Rico	59	95	154	..	2
Virgin Islands	...	2	2	..	2
Foreign	44	3,165	3,209	977	..
Advertisers and agents	...	...	316	..	3
Exchanges	...	...	192	6	..
Complimentaries	...	...	97	..	..
Total on mailing list			113,600	6,144	996

TABLE 2.—*Percentage of Physicians Receiving The Journal**

State	Number Receiving Journal	Physicians in A. M. A. Directory	Approximate Percentage Receiving Journal
Alabama	924	2,123	44
Arizona	390	615	63
Arkansas	628	1,806	35
California	9,216	12,365	75
Colorado	965	1,886	51
Connecticut	1,713	2,720	63
Delaware	201	360	56
District of Columbia	1,732	4,540	38
Florida	1,465	2,391	61
Georgia	1,359	2,814	48
Idaho	238	446	53
Illinois	7,023	12,548	55
Indiana	2,211	4,165	53
Iowa	1,418	3,102	46
Kansas	1,070	2,042	52
Kentucky	1,089	2,717	40
Louisiana	1,287	2,601	49
Maine	454	1,011	45
Maryland	1,973	3,085	64
Massachusetts	4,287	8,085	53
Michigan	3,650	6,509	56
Minnesota	1,969	3,614	54
Mississippi	572	1,525	31
Missouri	2,697	5,183	52
Montana	273	556	49
Nebraska	921	1,637	56
Nevada	110	174	63
New Hampshire	346	687	50
New Jersey	3,546	6,008	59
New Mexico	272	447	61
New York	18,223	27,928	65
North Carolina	1,625	2,871	57
North Dakota	271	520	52
Ohio	4,774	9,406	51
Oklahoma	967	2,284	42
Oregon	814	1,493	55
Pennsylvania	8,367	13,503	62
Rhode Island	540	958	56
South Carolina	707	1,427	50
South Dakota	281	493	57
Tennessee	1,392	2,961	47
Texas	3,428	6,952	49
Utah	420	585	72
Vermont	271	551	49
Virginia	1,809	2,920	62
Washington	1,402	2,234	63
West Virginia	842	1,834	46
Wisconsin	1,915	3,551	54
Wyoming	139	263	53

* This table gives the number of physicians (based on the 17th Edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army, Navy and Public Health Service are not included.

Jan. 1, 1945, and table 2 indicates the number of physicians in each state, the number receiving THE JOURNAL and the approximate percentage of subscribers in each state.

Special Journals

As a result of the shortage of paper supplies, it became necessary to reduce the number of pages in each of the special journals. The editorial boards have endeavored to maintain the quality of material published in the journals to the highest degree possible. No special editions of any of this group of periodicals were published in 1944, although a request for one special edition has recently been received.

The reviews of the literature in the ARCHIVES OF SURGERY (Progress in Orthopedic Surgery and Urologic Review), the ARCHIVES OF INTERNAL MEDICINE, the ARCHIVES OF OPHTHALMOLOGY and the ARCHIVES OF OTOLARYNGOLOGY have been continued, and there is a considerable demand for the review on orthopedic surgery.

A shortage of manuscript editors has made increasingly difficult the production of numerous scientific publications of the Association during the war.

Each of the special journals enjoyed increased circulation in 1944, this being especially true of the ARCHIVES OF INTERNAL MEDICINE. The total increase in circulation for the whole group was 3,745.

Income derived from the publication of the nine special journals in 1944 exceeded cost by the sum of $107,962.37 as compared with a gain in the previous year of $47,451.06.

Hygeia

The position of HYGEIA in the field of health education is now recognized as one of leadership. In the schools HYGEIA is a most useful reference. From every issue of HYGEIA condensations and reprints appear in innumerable digest magazines. Its articles and editorials have been widely copied by newspapers and have been the basis of many references on the radio. The success of the periodical is now unquestioned and the recognition it has received makes important definite planning for expansion in the postwar period.

The total number of subscribers on the HYGEIA mailing list on Dec. 31, 1944 was 135,685, an increase of 34,174 over 1943. The average monthly net paid circulation during 1944 was 118,830 as compared with 115,846 in the preceding year. It is gratifying to note that the circulation of HYGEIA among physicians in the past year increased slightly.

For the fourth consecutive year income derived from subscriptions and the sale of advertising space in HYGEIA has exceeded the cost of publication. Net income in 1944 amounted to $68,117.81. Similar income in 1943 was $52,758.79.

Library

Requests for the loan of 10,836 periodicals were received and filled by the Library of the American Medical Association in 1944. The requests came from physicians in military service in this country and overseas and from civilian physicians in each of the forty-eight states. Chicago libraries also availed themselves of the service to a considerable extent, the American College of Surgeons having had the loan of 498 periodicals, the Medical Library of Northwestern University School of Medicine 172, the John Crerar Medical Library 338 and the University of Illinois School of Medicine 45. Periodicals and miscellaneous medical reprints were lent to 291 physicians serving with the armed forces.

About 2,000 package libraries were lent during the year. Approximately one fourth of the requests for this service came from physicians in the various military services of the United States. The subjects most frequently requested during the year were the Rh factor; penicillin; military medicine, including various phases of tropical medicine, aviation medicine, burns and malaria; blood pressure; sulfonamides; anesthesia, and blood transfusion. Approximately 200 requests were received from physicians overseas, who stated that they were desperately in need of material on certain subjects. Although the loan service could not be extended to those overseas, it was possible in every case to send duplicate material in the form of tear sheets and reprints from publications of the Association, which the physicians could keep for permanent reference. Miscellaneous reference questions numbering 4,500 were answered by letter and telephone.

Order and Mailing Department

The total number of orders handled through the Order Department in 1944 amounted to 80,649, a much lower number than in the previous year, and the number of units distributed was 287,088. More than 5,000 mail bags were used for mailing the 151½ tons of mail with which the Order Department was concerned.

In addition to more than 416,000 pieces of first class metered letter mail sent out, over 25,000 pieces of air mail and overweight first class mail and nearly 700,000 pieces of third class mail were handled in the Mailing Department during 1944. These figures do not include the several thousand letters mailed directly from various departments in the Association's offices.

Quarterly Cumulative Index Medicus

Unprecedented delay was experienced in the publication of the QUARTERLY CUMULATIVE INDEX MEDICUS for 1944. Owing to circumstances beyond control, the usual July-September issue had to be omitted. The decision to omit this issue was made in an effort to speed publication of the July-December volume, copy for which was sent to the printing department the first week in January 1945.

Practically no periodicals from European countries were received during the year. Approximately 17,944 foreign articles were indexed in 1944, about 63 per cent of this total representing Spanish and Portuguese articles. The remaining items were indexed from microfilms. Many more microfilms are on hand to be indexed but, because of the lack of personnel, it is not possible to cover this type of material very rapidly. The Library department was maintained with ten less assistants than formerly, which increased tremendously the work and responsibility of the remaining staff.

The net loss sustained in the publication of the QUARTERLY CUMULATIVE INDEX MEDICUS in 1944 amounted to $9,131.89 as compared with a loss in the preceding year of $19,784.97.

Council on Pharmacy and Chemistry

A noteworthy accomplishment during 1944 of the Council on Pharmacy and Chemistry was the creation of a Therapeutic Trials Committee to aid in the clinical appraisal of new drugs of promise. The Council is of the opinion that its facilities for contacts should be used to advance clinical research. It seems at the present time that this should take the form of mediating between manufacturers and the clinics; that the work should be confined to new products of definite and manifest promise, on which adequate laboratory work is available; that the Committee should have full jurisdiction over the choice of products that it sponsors; that the costs incurred in the actual trials should be the subject of contract between the manufacturer and the clinic conducting the trials; that plans for the operation of this committee should be developed, but that they need not be put into effect until the proposed peacetime plans of the Office of Scientific Research and Development and perhaps others concerning research which have been presented to Congress have crystallized. Details of the plan will be made available for all interested parties.

COUNCIL PUBLICATIONS AND REPORTS

During the year about 35,000 copies of New and Nonofficial Remedies, Useful Drugs, the Epitome of the Pharmacopeia of the United States and the National Formulary, Annual

Reprints of the Reports of the Council and Glandular Physiology and Therapy were distributed. Of this number New and Nonofficial Remedies comprised over 18,000 copies.

The figures for 1944 bring up to almost 461,000 the number of publications sponsored solely by the Council which have been distributed over the last twenty-two year period. Included in this figure are 203,000 copies of New and Nonofficial Remedies, of which about 95,000 have been complimentary paper bound copies issued to students in recognized medical schools.

During the year the Council began a series of short statements designed to be of special interest to the general practitioner. These statements offer information on the status of topics such as penicillin, serums and vaccines and vitamins. This series was favorably received and will be continued.

In addition to adopting for publication monographs and descriptions of drugs accepted for inclusion in New and Nonofficial Remedies, the Council adopted for publication various reports concerning the use of drugs in the prevention and treatment of disease. Deserving special mention are reports on the status of prophylaxis by Hemophilus pertussis vaccine, laboratory and clinical appraisal of new drugs, the status of penicillin, the use of vaccines for the common cold (a joint report with the Council on Industrial Health), the use of the electron microscope in the study of pathogenic bacteria, rickettsias and viruses, the comparative cost of vitamin mixtures, the local treatment of thermal cutaneous burns (a joint report with the Council on Industrial Health), the untoward effects of endocrine therapy, a comparison of the apothecaries' and the metric system, the status of germicidal soaps, the status of the antimeningococcic serum and meningococcus antitoxin, and a description of membership, activities, method of operation and attainments of the Council on Pharmacy and Chemistry.

RESEARCH

In addition to establishing a Therapeutic Trials Committee and to initiating and sponsoring research resulting from certain phases of problems facing the Council in its considerations, the Council's Committee on Therapeutic Research, which considers applications for research grants, issued during 1944 twenty-one grants ranging from $125 to $500. Many articles have been published during the year as a result of work done under these grants. The figures for 1944 bring up to 536 the number of grants that have been issued since the formation of the Committee in 1911.

ANNUAL MEETING

The Council held its annual meeting in October. The topics discussed and actions taken included the formation of the Therapeutic Trials Committee, stability and labeling of phenarsine preparations, status of thiouracil, recognition of proprietary and nonproprietary names, principles of the American Medical Association Cooperative Medical Advertising Bureau, the sale of endocrine preparations to the public, scope of the Council publication Useful Drugs, increase of the annual budget of the Council's Committee on Therapeutic Research, Spanish and Portuguese translations of New and Nonofficial Remedies, labeling and dispensing of digitalis and purified principles, advertising of contraceptives, continuation of reviews and other activities of special interest to the general practitioner, unnecessary length of advertising brochures, and relation of vitamins and coenzymes and sulfonamide therapy.

MEMBERSHIP

During 1944 Drs. David P. Barr and James P. Leake were reelected to membership, and Dr. W. Barry Wood Jr., professor of medicine, Washington University School of Medicine, St. Louis, was elected to membership to fill a vacancy.

On April 1 the Council lost one of its most active and helpful members and American medicine one of its respected teachers and research workers when death came to Dr. Robert A. Hatcher. As a member of the Council from its creation in 1905 until 1943 and from then until his death as member emeritus, Dr. Hatcher gave unselfishly of his time without thought of personal discomfort and deprivation. His contributions to Council progress were many.

MISCELLANEOUS

The Council has continued to provide its services and findings for the prosecution of the war effort and has supplied information to and cooperated with governmental agencies, regulatory and advisory, and with other bodies and organizations concerned with important problems dealing with the health of the armed forces and the civilian population.

The Council continued to enjoy cooperative relations with many agencies of the federal government and other bodies, and with representatives of a number of allied countries. There seems to be increasing interest in the work of the Council and the information it can provide on the part of scientists and others in many foreign areas. Correspondence from this source is increasing.

The changes initiated in 1942 and 1943 to expedite Council considerations have been received favorably and found effective. During 1944 further streamlining was effected to permit the Council to move even more quickly.

Educational activities were continued, the Council and its office providing much information for the medical profession, the general population and special groups interested in health education activities, special exhibits for loan, numerous addresses before scientific and lay audiences and on the radio and participation in many meetings concerned with the development, distribution and use of drugs intended for the diagnosis, prevention and treatment of disease.

The Chemical Laboratory

The work of the American Medical Association Chemical Laboratory during 1944 was devoted almost exclusively to the examination of products submitted for consideration by the Council on Pharmacy and Chemistry. This situation, although not unusual in comparison to earlier years, was brought about by the fact that the Laboratory has been operating with a reduced scientific and nontechnical staff. In October the Laboratory marked the completion of thirty-eight years of service to the medical profession.

WORK FOR THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry calls on the Laboratory each year to examine a number of new substances and to aid in the elaboration of suitable tests and standards by means of which uniformity in their composition and action may be assured. In 1944 the Laboratory gave consideration to standards for such substances as digoxin, a cardiac glycoside; hexestrol and momestrol, new synthetic estrogens; intocostrin, a curare extract; iso-par, an anti-infective for external use; neostam and neostibosan, organic antimony compounds employed in tropical medicine, and priodax, a water soluble radiopaque organic iodide.

In addition, the Laboratory examined many other products submitted to the Council. These were largely new dosage forms of substances currently described in New and Nonofficial Remedies or for which standards appear in the official compendiums the U. S. P. and N. F. A partial list of the various substances encountered in this work includes amytal, ascorbic acid, estrogenic substances in oil, diethylstilbestrol, insulin from zinc insulin crystals, ephedrine hydrochloride, merbromin, nikethamide, phenobarbital, pyridoxine, riboflavin, various sulfonamides and their sodium salts, theophyllide and vitamins A and D.

The Laboratory aided the Council in connection with the preparation of several monographs and descriptions of dosage forms of various drugs, which were published in THE JOURNAL during the year. Assistance also was provided in the revision of New and Nonofficial Remedies, 1944, and in replies to correspondence on chemical subjects and questions of nomenclature.

WORK FOR OTHER DEPARTMENTS OF THE ASSOCIATION

The Laboratory has coooperated with the Bureau of Investigation by providing technical advice and a limited amount of chemical examination.

The Laboratory continued aid to the Library staff in the classification of chemical substances under proper designations and has been of assistance to the editorial department, the advertising committee and to other departments by means of technical advice.

The Director of the Laboratory was called on to assist in connection with the physical arrangements for the meetings of the scientific sections during the 1944 annual session of the Association.

Council on Foods and Nutrition

Throughout the year 1944 the Council on Foods and Nutrition has been carrying out its policy of limiting its scope of acceptance to special purpose foods and those few general purpose foods which are considered of particular public health significance. Producers of accepted foods which have been declared outside the present scope have been requested to discontinue use of the Council Seal. Use of this seal is still permitted in connection with the acceptable educational advertising materials of various groups of the food industry engaged in providing nutritional information to the public.

The Council has continued to work in harmony with the various agencies of the government and other groups concerned with food problems related to the war. The advice of the Council on nutritional matters has been made available to branches of the armed forces. The federal enrichment program for baked goods has continued to receive the Council's support, and active efforts have been made by the members to provide for the continuance of these nutritional benefits after the present emergency.

PUBLICATIONS AND COUNCIL REPORTS

Early in the year the Handbook of Nutrition, which had been prepared under the auspices of the Council, came off the press. It has had wide distribution with the sale of 3,000 copies. A revised edition of the pamphlet Food Charts, prepared jointly by the Council on Foods and Nutrition and the Food and Nutrition Board of the National Research Council, was completed. This contained the most recently available data on food values and enrichment regulations.

A number of reports were published expressing the Council's views on the nutritional value of certain foods, providing data on processed foods and offering general nutritional information. Many food products are being fortified with multiple minerals and vitamins. Milk is one of these foods, and the Council published a report rejecting a fresh milk containing added vitamins and minerals which was submitted for acceptance. It is the Council's opinion that only the addition of vitamin D to milk is justified from the public health point of view. In another report the nutritional value of oleomargarine fortified with vitamin A was reaffirmed and announcement made that Council acceptance was being withdrawn from individual brands of margarine because of the limitation of Council scope to special purpose foods. The Council reported on a machine known as the "Mechanical Cow," which mixes dried defatted milk solids, fat and water for the production of reconstituted milk. The resulting milk product has high nutritional value, being an excellent substitute for fresh milk. A final report was made on the analytic study of vitamin B content of all types of prepared cereal products, as authorized by the Board of Trustees. Copies of this material have been in great demand. Through another report attention was directed to the high nutritional value of wheat and corn germ, with a presentation of data on the composition of these food substances. One further report served to point out the inadvisability of using any chemical preservatives as home canning powders, either because of lack of effective sterilizing action or because of destructive effect on the food. The Cooperative Committee on Industrial Nutrition of this Council and the Council on Industrial Health prepared an outline of the efforts made by all groups for the improvement of industrial nutrition. A resolution was adopted and published, summarizing these actions and making recommendations for continued improvement.

COUNCIL MEETINGS

Two meetings were held during the year. Many subjects discussed concerned problems of vitamins, their addition to foods and their preservation in foods. The Council adheres to the policy of restorative addition of vitamins to staple foods of the diet, with limited exceptions where fortification to higher than natural levels is considered in the interest of the public health.

The Council is anxious to encourage the production of high quality natural foods. Consideration was given to the plan of granting use of the Seal of Acceptance to tomato juice of specified high natural vitamin C content. It was decided to do this and to extend this use of the Seal to citrus juices and other foods. A resolution was adopted encouraging the development of improved feeding methods of dairy cattle and the practical application of these methods to raise the vitamin A content of winter milk.

NUTRITIONAL CONSULTATION

The Council has made its services freely available during the year to any individuals or groups seeking nutritional information. Because of war shortages it has been necessary to make substitutions in the ingredients of some processed foods, and the Council's opinion has been sought regarding these changes. Guidance has been given in the development of new products to insure worthwhile nutritional value. The Council office serves as a clearing point for nutritional information to other departments of the Association and for correspondence from physicians as well as for the food advertising in medical and other scientific publications. Cooperation has been continued with the agencies of the government in support of the declared policies relating to foods and nutrition. Numerous state and local nutrition committees have availed themselves of the Council's educational materials.

GROUP DISCUSSIONS

The Secretary of the Council participated in the educational endeavors of organizations concerned with nutrition. Papers were presented at the annual meeting of the American Dietetic Association, and articles on nutrition were prepared for professional and lay publications. The Secretary represented the Association in discussions on food and nutrition held under the auspices of the Norman Wait Harris Memorial Foundation of the University of Chicago and in the organizational meetings of studies on air transportation of fresh fruits and vegetables sponsored by Wayne University of Detroit. Attendance at the meetings on the Food and Nutrition Board of the National Research Council has been made possible through the kind invitation of this group, with which the Council works in close harmony.

MEMBERSHIP

Col. John B. Youmans, at the present time Director of the Nutritional Division, Office of the Surgeon General, was elected to membership on the Council to take the place of Dr. Tom D. Spies, who served for a period of five years.

SEAL REVISED

The Council Seal of Acceptance was revised to have included on it the full name of "Foods and Nutrition."

Council on Industrial Health

The Council on Industrial Health has witnessed during the past year many evidences of extraordinary interest in the health of industrial workers and the growing vitality of the whole industrial health movement. Much of this interest involves provision of medical coverage for all kinds of sickness and disability. Industrial accident prevention and care, occupational disease control, health supervision over workers and their education into ways of hygienic living have received constantly

improved study and application. The Council believes sincerely that in no other field are there comparable opportunities to improve scientific medicine and the distribution of medical services and to awaken a real appreciation of the accomplishments of medicine on the part of a very large portion of the total population.

GENERAL RELATIONS

The International Labor Conference in Philadelphia in May 1944 and the resultant report on medical care convinced the Council that the International Labor Office will shortly resume its preeminent place in industrial health activity. It is intended to keep that organization acquainted with the various activities of the Council. The Council on Industrial Health believes also that it has an important role to play in the development and maintenance of satisfactory scientific and cultural relations with Canada and Latin America.

On the whole, the Council's relations with governmental agencies, especially those responsible for the conduct of the war, have remained unchanged. The activities of the industrial hygiene divisions of the Surgeon General's Office in the Army, of the Bureau of Medicine and Surgery in the Navy Department, of the U. S. Public Health Service and of the U. S. Maritime Commission have been followed through direct participation in these functions by members of the Council or through attendance at Council meetings by representatives of these services. The War Production Board, through its Office of Labor Production, has concentrated attention on courses in safety procedure and has informed many labor-management committees in war plants regarding the health and safety services open to them.

Contacts with labor and management have been improved, but the Council is not altogether satisfied with them. The present intention is to extend these relations to as influential sources as possible, having in mind the necessity for medicine to maintain a detached and independent view of many aspects of labor-management affairs. Experiences around the conference table so far lead to the hope that some form of regular liaison can be organized to permit frequent discussion of mutual problems.

The Council has taken the position that the expanding importance of health activities in industry demands that the physician be responsible directly to top management and that activities relating to health be centered in and directed through the medical department. This attitude will be brought to the attention of manufacturers and commercial interests.

PROFESSIONAL RELATIONS

The field activities of the Council on Industrial Health have been considerably curtailed through travel restrictions and loss of personnel, but activity reported by many of the committees on industrial health in the state and county medical societies has been most encouraging. Educational programs have been kept up, state medical journals have assigned more space to the subject and interesting experiments have received strong medical support. One of these, the Fort Greene experiment in Brooklyn, N. Y., uses labor-management committees in plants as a means of distributing health education material to workers and of building up interest in the establishment of adequate plant medical programs. In nearby Astoria the health department supplies industrial nurses to plants provided that they, in turn, employ a physician, maintain proper records and make suitable space and facilities available.

The committees on industrial health set up in sections of the Scientific Assembly of the American Medical Association have been relatively quiescent. Projects under way at present include an inquiry into the effect of occupation on the menopause, a study of upper respiratory infections in industry, the evaluation of disability in the upper extremities, acoustic trauma, psychiatry in industry, industrial ophthalmology and methods of evaluating detergents and protective creams, all of which are illustrative of the many contributions which consulting specialties can make to better care for workers.

Other professional groups—dentists, nurses, nutritionists, engineers and technicians—have a real stake in the industrial health field. Appropriate matters are discussed jointly with official agencies representing these groups. The Council has reaffirmed its opinion that public industrial hygiene activity should reside in bureaus operated by health departments and that the services performed by these bureaus—the Division of Industrial Hygiene of the U. S. Public Health Service and similar divisions of state and local health departments—merit full support from the medical profession at large.

PROFESSIONAL EDUCATION

A joint committee of the Council on Medical Education and Hospitals and the Council on Industrial Health was recently set in motion. The discussion up to the present time has suggested that undergraduate teaching in the field of industrial medicine should stress orientation and guidance rather than complete coverage. Every effort will be made to encourage medical schools, medical societies and others to develop refresher courses for physicians. The question of approval of in-plant training for physicians in industrial medicine was not entirely settled. Standards need to be formulated and separately considered. Preferably, such training should be offered in affiliation with an established educational institution or hospital. The committee was greatly impressed with the plans for graduate teaching in industrial health at Wayne University Medical Center and elsewhere which are based on suitable correlation between medicine, toxicology, chemistry, sanitation and other disciplines. The development of a certification program depends on the proper conduct of such advanced educational centers. In general, it was agreed that the Council on Industrial Health should continue to exercise initiative in all phases of medical education affecting industry and that this joint committee should meet periodically to discuss new developments and consider new policies and standards.

The seventh Annual Congress on Industrial Health was not held, owing to the ruling of the Office of Defense Transportation about conventions. It is hoped, however, to collect the papers scheduled for presentation at the Congress and publish them in an Industrial Health Number of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION as in past years.

Suggestions for motion pictures based on industrial health topics have been referred to the Council on Scientific Assembly in the hope that these can be prepared and distributed to interested professional and other groups.

INDUSTRIAL HEALTH EXAMINATIONS

The report on Industrial Health Examinations, which was approved by the House of Delegates in 1944, has since served as the basis for several interesting conferences with officials of the War Manpower Commission, the U. S. Civil Service Commission, the Office of Vocational Rehabilitation, the U. S. Public Health Service and labor, management and insurance groups. The return of many disabled persons to profitable employment has made it necessary to develop a selective placement program whereby physical capacity is matched as closely as possible with specific occupational requirements. Any successful plan must rest fundamentally on reasonable acquaintance of physicians with the nature of many jobs and on the proper interpretation of medical information by employment or placement officers. These discussions are likely to be one of the very significant contributions of the Council to the whole industrial health program and will involve studies and observations lasting over a number of years. In all other respects the Council expects to maintain leadership in the field of industrial health examinations and to continue to prepare supplementary reports on special kinds of physical examinations.

WORKMEN'S COMPENSATION

The Committee on Workmen's Compensation of the Council on Industrial Health was officially enrolled as an associate member of the International Association of Industrial Accident Boards and Commissions. Several conferences have been held with officials of that association, casualty insurance leaders, governmental agencies and others, and other meetings are in

prospect. Out of these discussions has come the recommendation that the Council on Industrial Health, the Bureau of Legal Medicine and Legislation, the Committee on Uniform Laws of the American Bar Association, the Legal Committee of the Industrial Hygiene Foundation and other interested groups collaborate on a model occupational disease law. Principles adequately reflecting the medical interests involved will be agreed on, and on that basis the Council has agreed to participate actively with these other groups. Conferences with these groups will pave the way toward simplification of report forms required by compensation commissions and insurance companies respecting industrial accident and disease.

Insurance companies have asked the Council to sponsor the preparation of reports on medical and surgical conditions about which questions most frequently arise in the adjustment of claims. The crystallization of prevailing medical opinion in these fields is regarded as a responsibility of the Council, and details for the formulation of such reports are being worked out currently.

The need of state medical societies for dependable aid and guidance in workmen's compensation affairs grows more evident daily. Such service can be supplied from the Council office on request because of ready access to relevant material in the files of the other Councils and Bureaus of the Association.

REHABILITATION

Rehabilitation is a major preoccupation of many official and independent agencies at the present time. Industry has always been concerned with the rehabilitation of its own injured and disabled. Now it is necessary to expand these facilities to expedite the reemployment of disabled veterans. In future years industry will deal more and more with the Federal Security Agency's Office of Vocational Rehabilitation as this agency expands its federal-state program. Since every rehabilitation problem rests fundamentally on medical diagnosis, disability evaluation and case management, the medical interest involved is enormous.

The Council on Industrial Health has therefore created a Committee on Medical Policy in Rehabilitation and Employment made up of its existing committees on Rehabilitation, Physical Examinations and Workmen's Compensation. This combined committee regards the following activities as essential if medicine is to occupy a position of leadership and influence in the rehabilitation picture:

1. A central clearing house will be established in the Council office to collect and disseminate information about the rehabilitation activities of all interested agencies.

2. Committees on industrial health or other appropriate units in state medical societies will be asked to maintain contact with the activities of state rehabilitation agencies. Other medical organizations will concern themselves with special procedures involving specific kinds of disability. Regular reports will be requested and will be used as a basis for integrated and correlated medical service.

3. Special reports will be prepared on various methods of restoration, on vocational guidance and training and on selective placement of the handicapped. Other educational services will be developed as indicated.

COOPERATIVE ACTIVITIES

In addition to the activities mentioned, the Council has asked and received cooperation from most of the established agencies of the American Medical Association. The Committee on Industrial Nutrition, created jointly with the Council on Foods and Nutrition, has concerned itself with the food requirements of workers, vitamin administration and, more recently, sanitary standards for preparation and serving of food. Reports on thermal burns and on cold vaccines were published in cooperation with the Council on Pharmacy and Chemistry. Matters relating to rehabilitation and resuscitation have been considered with the Council on Physical Medicine. Contacts with the Council on Medical Service and Public Relations have demonstrated many common problems needing joint consideration. On many occasions the Council has profited through consultation with the Bureau of Health Education and the Bureau of Legal Medicine and Legislation.

HEADQUARTERS ORGANIZATION

Personnel and facilities to take care of the constantly enlarging scope of activities will be secured as soon as they become available. Assistance is necessary to conduct the field services of the Council, to promote the clearing house and special report program jointly with the consulting committees representing the sections of the Scientific Assembly and other societies and to develop the medical phases of workmen's compensation, reemployment and rehabilitation. Reorganization along these lines will result in much more effective service to the profession, to labor and to management.

INDUSTRIAL HEALTH SERVICE FOR FEDERAL EMPLOYEES

Hearings were conducted by a subcommittee of the House Committee on Civil Service relative to a bill which proposed to make available to employees of the federal government the same kind of medical service commonly provided by private industry. Representatives of the Council who were called to testify approved the intent of the legislation, since it conformed to standards developed by the Council and included safeguards characteristic of private industrial medical service plans.

PHYSICAL FITNESS

Much of the program of the Council lends itself directly to the promotion of positive health and physical fitness in the industrial population. The Council therefore is prepared to collaborate in all effective ways in the physical fitness movement and has been asked to participate in certain details of organization and education of employers and workers.

POSTWAR DEVELOPMENTS

The war has intensified interest in industrial welfare. The Council expects this interest to continue into the postwar era. In preparation, therefore, the Council has outlined lines of inquiry and development which will improve the contribution of medicine to industrial health and safety. The occupational dermatosis problem must be attacked through fundamental research and education. Serious limitations in personnel dictate the construction of training centers for industrial hygienists and toxicologists. Present trends indicate a strong demand for a practical industrial mental health program. The relationships of preventive medicine and public health administration to industry need clarification, having particular reference to case finding programs, immunization, nutrition, recreation and housing. Industrial physicians must know how to deal with active or latent tropical disease in applicants who present themselves for employment. The frequency and severity of industrial disabilities must be reduced through prevention and adequate case management. In the latter connection physical medicine, occupational therapy, functional exercise and reconditioning have much to offer. The place of the physician in industry, the trends toward the extension of industrial medical service to cover nonoccupational illness or injury, the labor-management approach to health and safety problems all call for elaboration of specific medical policy. The Council on Industrial Health, confronted with questions of this magnitude, believes that its career of useful activity has barely started.

Bureau of Health Education

Wartime difficulties which affected the work of the Bureau in 1943 were intensified in 1944, largely because of inavailability of adequate personnel.

CORRESPONDENCE

The Bureau mail was about the same in total quantity as in 1943. Correspondence with physicians and cooperating agencies increased from 2,724 to 3,825; question and answer letters increased from 6,065 to 6,598. Queries received from museums and exhibits dropped from 1,866 to 1,259, perhaps a reflection

of curtailed travel and canceled meetings. The total of 11,718 as compared with 11,259 the preceding year indicates little overall change in the volume of correspondence.

BUREAU PUBLICATIONS

The Director of the Bureau has prepared material for THE JOURNAL and for HYGEIA. Fourteen articles prepared by the Bureau were published in periodicals other than those of the Association.

RADIO

The radio work of the Bureau falls into four principal classifications: network broadcasts, electrical transcriptions, script library and special broadcasts.

The network program was continued into its eleventh consecutive year of dramatized broadcasting on a nationwide network of the National Broadcasting Company. Still keeping the theme and title "Doctors at Work," in 1944 the fourth "book" or series under this title was broadcast with the subtitle "Doctors at War." Beginning January 8 twenty-six programs were scheduled and twenty-three actually broadcast. Time was relinquished for a broadcast by the President of the United States on one occasion and on another for a recruiting program for the Cadet Nurse Corps by the Office of War Information. The closing program of the series, scheduled to be a pick-up by shortwave from foreign theaters of war, was canceled because it might have coincided (as it actually did) too closely with D day in Europe. An unsolicited letter of commendation from the Surgeon General of the U. S. Army was received when the program closed at the end of June:

WAR DEPARTMENT
Services of Supply
Office of the Surgeon General
Washington

28 June 1944

Dr. W. W. Bauer
The American Medical Association
535 North Dearborn Street
Chicago, Illinois
Dear Dr. Bauer:

With the close of this year's "Doctors At War" radio series I wish to again thank you and your colleagues for your excellent service to the Medical Department of the United States Army.

This program is consistently good and I know from the correspondence which I have personally received that it has inspired confidence and faith in the American public in the work of the Medical Department during this crucial war period.

Sincerely yours,
NORMAN T. KIRK,
Major General, U. S. Army
The Surgeon General.

The script library again shows a shrinkage. At one time there were available 1,000 titles divided among fifteen minute, ten minute and five minute talks. The demand for five minute talks dropped so low that as of Jan. 1, 1944 the five minute list was discontinued but the best talks in the list were combined by subjects and added to the fifteen minute list in a series of scripts entitled "Medical Echoes from Here and There." Each script in this series consisted of a contribution from two or more sources. Suggestions to local broadcasters were that several voices should be employed in broadcasting these scripts, thus giving more variety and interest to the presentation. Despite the shrinkage in this service, twelve state and county medical societies or their auxiliaries utilized the service for the first time in 1944. The total distribution of radio talks was 1,352 to a total of twelve county medical societies, seven county health departments, one hospital and one county nursing service.

Electrical transcriptions, first made available in 1943, constituted the most important development in the work of the Bureau in 1944. Starting with an experimental project broadcast over WLS, as described in the annual report for 1943, a series of sixteen programs was developed under the title "Before the Doctor Comes." At about the same time another series on wartime medical problems entitled "Medicine Serves America" was prepared. These constituted the nucleus of radio electrical transcriptions at the end of 1943. Also becoming available early in 1944 was a series of twelve interview recordings entitled "Dodging Contagious Diseases."

Early in 1944, in cooperation with the Chicago Public Schools, a series of twelve programs was developed under the title "Health Heroes." These were stories at the level of fourth and fifth grade elementary school children, each story containing a health lesson, first broadcast to the Chicago schools by FM radio. They were later rebroadcast for records. This series of records has been offered to the schools for permanent use at $25 per set.

In the late spring of 1944 it became obvious that electrical transcriptions were going to be a success. Originally ten sets of each series were ordered, and these were distributed on a loan basis. It soon became apparent that more would be needed. Enthusiastic promotion by the medical societies of Arizona, Wisconsin, Texas and Pennsylvania and numerous loan applications from county medical societies and health departments depleted the loan stock so that it was increased, first to twenty, then to twenty-five and at last to thirty sets of each series. The loss by breakage and failure to return loaned sets has been surprisingly small. On the basis of the loan records it is estimated that in 1944 there were approximately 1,052 local broadcasts from these transcriptions. Because of the obvious and rapid growth of demand, the Board of Trustees made provision for the preparation of a series of dramatized recordings and for the purchase of additional pressings of series already in circulation.

During the summer of 1944 a dramatized series of twelve programs entitled "Live and Like It" was written and produced and is now in circulation in addition to the other series.

During the autumn of 1944 a series of interview and round table programs was recorded dealing with health problems in adult life and with the leading causes of aging and of death. This was entitled "More Life for You." In this series twenty-two prominent physicians were interviewed.

With continued evidence of the demand for transcribed broadcasts, the Board of Trustees in September 1944 authorized recording of the following series:

A. "Guardians of Your Health," thirteen programs devoted to public health.
B. "Keep Cool," twelve programs on summer health hints.
C. Twelve additional dramatizations, possibly an extension of the series "Live and Like It."
D. A series on child health problems other than communicable disease.

As usual, special radio broadcasts were arranged during the Chicago session. In spite of shortage of radio time due to high advertising sales and extensive governmental demands, to say nothing of a political campaign, broadcasts on the Blue Network, the Columbia Broadcasting Company, the National Broadcasting Company and local stations WIND, WCFL, WJJD and WAAF were made with the generous cooperation of the network and managers of the stations mentioned. The Presidents, outgoing and incoming, of the American Medical Association and Army and Navy medical officers made the broadcasts.

MEETINGS AND CONFERENCES

The Director traveled 27,375 miles to address audiences or attend meetings in nine states. Audiences addressed numbered eighty-nine and totaled 28,595 persons. In addition to audiences addressed, the Director participated in thirty-eight conferences and meetings. Thirty-three engagements were declined or had to be canceled because of previous commitments, travel difficulties or other causes.

HYGEIA CLIPPING COLLECTIONS

The large number of physicians in military service and the heavy demands on those remaining has decreased local speaking by doctors to lay audiences. Therefore, HYGEIA clipping collections were lent only 108 times in twenty-five states. The principal topic called for was "Ten Points in Healthy Living."

HEALTH PUBLICATIONS

Owing to the necessity for conserving paper, only a small number, twelve new titles, of new publications were added in 1944, while two titles were discontinued. The total distribution of Bureau publications was 217,879 items.

COOPERATIVE RELATIONSHIPS

Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.—The 1944 meeting of this committee, held at the headquarters of the American Medical Association, was very successful. The committee elected Dr. Thurman B. Rice chairman to succeed Dr. Charles C. Wilson, Dr. A. J. Chesley secretary to succeed Dr. W. W. Bauer, and Dr. Duggan was elected vice chairman. Dr. Thurman B. Rice was reappointed for the five year term expiring in 1949. Dr. George M. Lyon was absent by reason of his duties in the U. S. Navy. Superintendent Willis A. Sutton and Dr. Glenville Giddings sent proxies.

Subjects dealt with on the agenda of the Joint Committee were as follows: Relationships of the Joint Committee to the National Conference on Cooperation in Health Education were discussed; the committee published a list of its publications with prices and information as to availability; the committee adopted a resolution on health education in secondary schools; the committee adopted a statement on wartime administration of drugs in schools prepared by Dr. Austin E. Smith; a hard of hearing report prepared by Howard A. Carter was submitted to a mail vote; a report on ultraviolet lamps for disinfecting purposes in schools was adopted and ordered published; a small subcommittee was appointed to endeavor to make a brief statement on food rationing and its effect on nutrition of school children.

U. S. Children's Bureau Advisory Committee.—The Advisory Committee to the U. S. Children's Bureau met in December. In November the Children's Bureau called a conference of official representatives of medical and other groups interested in the EMIC program.

The status of this program has not changed except in scope and size. The appropriation for the 1945 fiscal year was 40 million dollars, and it was expected that more than three hundred thousand wives of servicemen and their infants would be cared for. The position of the medical profession apparently remains unchanged, namely, complete accord with the purpose of care for servicemen's wives and children but dissatisfaction with the administrative methods of the Children's Bureau by which all blame for errors and mistakes falls on the local administrators and the major share of the credit for success goes to the federal agency. Some physicians are caring for soldiers' wives and infants gratis and declining to accept remuneration from the government, while others are cooperating in the program under protest.

The details of the situation reported to the Trustees in the 1943 annual report of this Bureau remain essentially unchanged and are therefore not repeated.

National Committee for Boys and Girls Club Work.—The work of this committee proceeds routinely, with nothing of special interest to report in 1944.

National Congress of Parents and Teachers.—The work of the National Congress of Parents and Teachers follows along the same general lines, but it becomes increasingly difficult and in many places impossible to have children examined because there are simply not enough doctors and dentists to make examinations.

American Public Health Association.—The Director continues to be active in the affairs of the American Public Health Association. He is serving as an elective member of the Governing Council for a three year term expiring in 1947 and is a member of the Committee on Professional Education, one of the association's major committees, as well as of the Accident Prevention Subcommittee of the Committee on Administrative Practice. He is chairman of the Health Education Section's Committee on Health Education in Hospital Outpatient Departments and Clinics.

At the 1944 meeting of the American Public Health Association there was adopted a report entitled "Medical Care in a National Health Program." This report practically called for compulsory federal health insurance. It was prepared by a subcommittee of the Committee on Administrative Practice, adopted by the committee and adopted by the governing council of the association after that body had rejected a proposal that the report be received and a conference committee be appointed to meet with representatives of the American Medical Association and the American Dental Association. The report and an editorial comment were published in THE JOURNAL, Oct. 14, 1944.

National Conference for Cooperation in School Health Education.—This conference did not meet in 1944, but the executive committee functioned by correspondence and by informal conferences among its members at other meetings. Steps are being taken to procure financial support to conduct some studies in school health procedures in 1945. Mr. Mayhew Derryberry of the U. S. Public Health Service is chairman of the conference. The Director of this Bureau is a member of the executive committee.

U. S. Government Agencies.—The U. S. government agencies with which the Bureau has cooperated, or to which the Bureau has furnished information during the year, are as follows:

Federal Security Agency: Office of Education; Public Health Service.

War Department (U. S. Army): Office of the Surgeon General; Office of the Air Surgeon; Army Service Forces; Bureau of Public Relations; Nutrition Research Laboratory; Army Nurse Corps; Liaison Office, War Department and American Medical Association; Preventive Medicine Service; Technical Information Branch.

Navy Department: Audiovisual Education Branch; Bureau of Medicine and Surgery; Public Relations Branch.

Department of Agriculture: Farm Security Administration; Agricultural Research Administration.

Department of the Interior: Office of Indian Affairs, Denver.

Department of Labor: Children's Bureau.

Office of Coordinator of Inter-American Affairs.

The United States Chamber of Commerce also has received the cooperation of the Bureau.

MISCELLANEOUS

The staff of the Bureau includes two trained guides, who made numerous tours of the building with guests.

The Bureau continued to compile information on medical research and to distribute it in response to requests.

The Bureau furnished questions and answers to HYGEIA for publication; forty-seven were published. In obtaining these answers, the Bureau consulted twenty-five experts outside the American Medical Association building. All HYGEIA galley proofs and page proofs were checked in the Bureau.

The Bureau continued its cooperation with the Woman's Auxiliary in its various activities.

The Assistant Director continues to be a member of the Medical Advisory Committee of the Chicago chapter of the American Red Cross and the Veterans Rehabilitation Committee of the Chicago Tuberculosis Institute.

On suggestion of the Joint Committee, the House of Delegates modified its resolution adopted in 1943 dealing with biology teachers. The Bureau is responsible for disseminating information on this matter and has done so to the best of its ability.

The postgraduate students from the U. S. Public Health Service and the Kellogg Foundation numbered 40 in 1944 instead of 29 as in the previous year. They spent a week at the Association's offices and were given an intensive course of instruction, observation and demonstration covering the work of the American Medical Association. They came this year from the University of North Carolina, University of Michigan, University of Illinois and the Health Department of the Province of Quebec. In addition to the large group, the following students spent several days or a week in similar individual observations: Dr. Herman San Martin of Chile, Drs. G. Castillo and Mario Queiroz of Brazil, Mrs. Mary Carr Baker of the Massachusetts State Health Department, Miss Frances C. Hunter of the California Department of Public Health, Miss Andromache Tsongas of the Harvard School of Public Health, Miss Elizabeth Dean of the Illinois State Health Department and Mr. I. R. Vaughn of the North Dakota State Health Department.

(To be Continued)

Washington Letter

(From a Special Correspondent)

Sept. 24, 1945.

Disabled Veterans Ask "B-29 Solution" of Artificial Limb Problem

While American servicemen get ultramodern medical treatment, those who lose a limb are fitted with "horse and buggy" artificial arms and legs, according to three medaled Walter Reed Hospital patients testifying before the Kelley Subcommittee on Aid to the Physically Handicapped, the chairman of which is Representative Augustine B. Kelley, Democrat of Pennsylvania. The three men dramatically stressed the need for a federal long range program toward developing improved artificial limbs. "We want the government to attack this problem just as it attacked the problem of building the B-29—by turning it over to technicians working on a full time basis," stated First Lieut. Sol Rael, 24, of New York, tankman, who lost an arm in Germany to a sniper's bullet, Howard Morse, 36, New York coast artilleryman, whose left leg was amputated after he was hit by shell fragments in the Philippines, and Irving Krieger, 34, East Orange, N. J., whose left leg was lost in a mine blast in France. Their comments came out in a spirited round table discussion with Representatives Kelley, William J. Green, Democrat of Pennsylvania, and Sherman Adams, Republican of New Hampshire.

Army Mismanagement of Medical Manpower Charged

Col. W. Paul Holbrook, testifying before the Senate Military Affairs Committee as an investigator to survey army medical needs, said that too few doctors had been used by the Army at the front and too many behind it. He claimed that the armed forces had taken 60,000 doctors for the 12,000,000 men in uniform and had left only 90,000 at home to care for 120,000,000 civilians. He declared that there were too many doctors for service personnel and that determining the number of physicians required on the numerical strength of units was a "fundamental fallacy" of the army system. Colonel Holbrook said that 50 doctors assigned to a 15,000 man infantry division were "far too many for preventive medicine to healthy young men, yet far too few on the field of battle." Despite this, he pointed out, this number of doctors was assigned to a division whether or not it was at the front or in an inactive theater.

More Hospitals and Doctors Required by Veterans Administration

Veterans Administration officials are now checking on additional hospital and medical personnel needs of the agency, expected to be heavy as increasing numbers of servicemen are discharged. Gen. Omar N. Bradley, new veterans administrator, with Major Gen. Paul R. Hawley, acting Veterans Administration Surgeon General, and Brig. Gen. H. B. Lewis, acting director of organization, and other aides, conferred at Atlanta, Ga., with agency officials from eight Southeastern states.

Navy to Release 1,678 Reserve Medical Officers

Vice Admiral Ross T. McIntire, Surgeon General of the Navy, informed the Senate Military Affairs Committee that the Navy would release 1,678 of its 12,000 reserve medical officers under the point system by January 1. He explained that they will be released at the rate of 880 a month, starting January 1, and that 8,000 will be out by the time the Navy researches its postwar goal of 550,000 officers and men next September 1. An effort will be made to keep medical discharges up to the pace of demobilization of fighting personnel.

Dr. Parran Maps Six Point Health Program for All Citizens

A six point program to provide "equal health opportunities for every citizen" was outlined by Surg. Gen. Thomas Parran of the U. S. Public Health Service at the 122d opening session of George Washington University School of Medicine. He was guest of honor at a luncheon given by Dr. Walter A. Bloedorn, dean of the school, at the Mayflower, attended by Army, Navy and District medical leaders. Dr. Parran's program called for (1) an integrated system of hospitals and health centers radiating from a central unit to smaller local and rural communities; (2) sanitary environment, covering water, milk, food and sewage, which would eradicate such diseases as malaria; (3) intensified preventive disease programs, including expanded cancer control, dental, nutrition and nursing programs; (4) expanded medical research; (5) training of engineers, nurses, technicians and research workers, as well as doctors, to man postwar health armies; (6) health insurance and medical care, as provided in such legislation as the Wagner-Murray-Dingle bill and the Miller bill. Dr. Parran said that 121 bills coming up in the 79th Congress would cover his six point program. "It is a miracle," he said, "that the nation came through the war with no serious health impairment. We suffered no devastating epidemics; tuberculosis was held in check through intensive control efforts, and there was no overall increase in venereal disease."

DANGER OF DISEASE INCREASE IN DEMOBILIZATION

Dr. Parran warns that there is danger of a sharp rise in tuberculosis and venereal disease during demobilization, with millions of war working civilians and servicemen returning to areas where health services and facilities are depleted. "The control of communicable diseases, especially those spread by personal contact," he said, "will be more difficult than during the war, when the military authorities cooperated with the civilian agencies in applying the brakes to spread of infection." Dr. Parran advocated local and state rather than federal control of health problems. The freshman class of eighty-six included twelve women, largest feminine delegation in the history of the university.

Randolph Health Bill for Federal Employees Considered Again

The House Rules Committee has cleared the way for consideration on the House floor of the Randolph health bill for government employees. An hour's debate was ordered. The health bill, sponsored by Representative Jennings Randolph, Democrat of West Virginia, provides for setting up employee health program, including clinics in various government departments, at the direction of department heads. It would be part of a general programs, to promote physical and mental fitness of government employees such as is now carried out by a large number of business organizations.

Presidential Pool Too Deep for Poliomyelitis Patients

Sixty District of Columbia infantile paralysis patients who had hoped to use the White House swimming pool to improve their condition by swimming had the consent of President Truman, but it was found on inspection to be too deep and too small. The pool was formerly used by the late President Roosevelt.

Conference for International Health Organization Advocated by Senator Pepper

Senator Claude Pepper, Democrat of Florida, is pressing for action on his resolution for speedy convening of an international conference to establish a permanent international health organization.

Coming Medical Meetings

American Medical Association House of Delegates, Chicago, Dec. 3-6. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

American Ophthalmological Society, Hot Springs, Va., Nov. 12-14. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

Association of American Medical Colleges, Pittsburgh, Oct. 29-31. Dr. Fred C. Zapffe, 5 S. Wabash Ave., Chicago, Secretary.

Delaware, Medical Society of, Wilmington, Oct. 8-10. Dr. W. H. Speer, 917 Washington St., Wilmington, Secretary.

Indiana State Medical Association, French Lick, Nov. 6-8. Mr. Thomas A. Hendricks, 23 E. Ohio St., Indianapolis 4, Secretary.

Kentucky State Medical Association, Lexington, Oct. 29-31. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.

New York, Medical Society of the State of, House of Delegates, Buffalo, Oct. 8-9. Dr. W. P. Anderton, 292 Madison Ave., New York 17, Secretary.

Omaha Mid-West Clinical Society, Omaha, Nebraska, Oct. 22-26. Dr. R. W. Fouts, 107 S. Seventeenth St., Omaha, Secretary.

Pennsylvania, Medical Society of the State of, House of Delegates, Philadelphia, Oct. 23-24. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh 22, Secretary.

Southern Medical Association, Cincinnati, Nov. 12-15. Mr. C. P. Loranz, Empire Bldg., Birmingham 3, Alabama, Secretary.

Virginia, Medical Society of, House of Delegates, Roanoke, Oct. 22-23. Miss Agnes V. Edwards, 1200 Clay St., Richmond 19, Secretary.

Official Notes

COMMITTEE ON MEDICAL MOTION PICTURES

The Board of Trustees of the American Medical Association has appointed the following Committee on Medical Motion Pictures to study the problem of production, distribution and use of motion pictures in medical education and graduate medical instruction:

Elmer L. Henderson, M.D., Louisville, Ky., chairman of the Committee on Scientific Exhibit, American Medical Association.
Morris Fishbein, M.D., Chicago, Editor of THE JOURNAL.
A. N. Franzblau, M.D., U. S. Public Health Service, Bethesda, Md.
Thomas S. Jones, Chicago, professor of medical illustration, University of Illinois College of Medicine.
Dean F. Smiley, Commander (MC), U.S.N.R., Washington, D. C.
Thomas G. Hull, Ph.D., Chicago, Director of the Scientific Exhibit, American Medical Association.

The following consultants have been appointed to assist the committee:

Herman L. Kretschmer, M.D., President, American Medical Association.
Victor Johnson, M.D., Secretary, Council on Medical Education and Hospitals, American Medical Association.
Malcolm T. MacEachern, M.D., associate director, American College of Surgeons.
Fred C. Zapffe, M.D., secretary, Association of American Medical Colleges.

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

New Plan to Include Medical Care in the Home and Doctor's Office

The United Medical Service, Inc., has announced expansion of its program to include a group contract for the provision of medical, surgical and maternity care, including after-care, in the home and doctor's office as well as in the hospital. The expanded service will be limited to a maximum of 25,000 persons enrolled in groups of 50 or more in Associated Hospital Service of New York until further expansion is justified on the basis of actual experience. During the present trial period groups will be selected from widely separated communities in the area covered by the plan. Contracts for the service, which provides full coverage to families with incomes up to $2,500 and partial coverage for all other enrolled subscribers, will be issued by United Medical Service to employers instead of to individual subscribers as in previous plans. Complete coverage for the expanded service will cost $1.60 a month for individuals and $4 a month for husband and wife, including any number of unmarried children under 18 years of age. Subscribers will be entitled to one visit a day from a general practitioner up to as many as twenty visits for any one illness, injury or pregnancy case. Additional visits may be authorized by United Medical Service.

United Medical Service will pay the participating physician $2 for each visit from a subscriber to his office and $3 for each visit he makes to the patient at home or in the hospital. For any call after 8 p. m. the physician may make an additional charge, which will not exceed $2 for subscribers in the lower income brackets. For this group of subscribers such payments will constitute the participating physician's entire fee. Specialist services are provided when the subscriber is referred to a qualified specialist by his attending physician. In these cases United Medical Service will pay the specialist 50 per cent toward an established "base rate" fee. The specialist will not charge more than the remaining 50 per cent to subscribers with family incomes under $2,500.

Income limits previously established by United Medical Service for complete benefits are $1,800 yearly for individuals and $2,500 for families. Subscribers whose incomes exceed these levels are entitled to partial payments against their bills, with the proviso that persons earning between $2,500 and $3,500 a year may appeal to a board of physicians if they consider a doctor's charges too high. It was announced that the contract is being offered to a limited number of subscribers as a test of its feasibility until such time as United Medical Service accumulates sufficient data for actuarial calculations. Contracts will be spread out over as wide an area as possible in order that, with the normal expectancy demand for medical care, no one physician will be likely at the present time to have more than a few subscriber families as patients. The Coordinating Council of the Five County Medical Societies of Greater New York issued a statement approving the project.

Bureau of Information

REPORTS RECEIVED FROM MOST COUNTIES

Twenty-five states have completed and returned summary sheets for all of their counties. Twenty-one additional states have submitted returns from some but not all of the counties in their respective states. Only Delaware, with three counties, Oregon, with thirty-six, and Rhode Island, with five, have not yet returned any summary sheets to the Bureau of Information.

A tabulation of returns from state and county medical societies, as of September 20, is presented herewith:

County Returns Complete

State	Number of Counties	Number of Counties Reported	Counties Unreported
Arizona	14	14	0
Arkansas	75	75	0
Connecticut	8	8	0
District of Columbia	1	1	0
Illinois	102	102	0
Indiana	92	92	0
Iowa	99	99	0
Kansas	105	105	0
Kentucky	120	120	0
Louisiana	64	64	0
Maine	16	16	0
Massachusetts	14	14	0
Minnesota	87	87	0
Missouri	115	115	0
Nevada	17	17	0
New Mexico	31	31	0
New York	62	62	0
North Dakota	53	53	0
Ohio	88	88	0
Pennsylvania	67	67	0
Tennessee	95	95	0
Utah	29	29	0
Vermont	14	14	0
West Virginia	55	55	0
Wisconsin	71	71	0
Total	1,494	1,494	0

Partial Returns of County Summary Sheets

State	Number of Counties	Number of Counties Reported	Counties Unreported
Alabama	67	65	2
California	58	24	34
Colorado	63	29	34
Florida	67	23	44
Georgia	159	71	88
Idaho	44	27	17
Maryland	24	15	9
Michigan	83	56	27
Mississippi	82	4	78
Montana	56	52	4
Nebraska	93	82	11
New Hampshire	10	8	2
New Jersey	21	9	12
North Carolina	100	37	63
Oklahoma	77	64	13
South Carolina	46	23	23
South Dakota	69	62	7
Texas	254	161	93
Virginia	100	66	34
Washington	39	27	12
Wyoming	23	14	9
Total	1,535	919	616

Since V-E day and even more since V-J day, medical officers or veterans recently separated from service are inquiring with increasing frequency for information which can be obtained from the county summary sheets. In order to supply the requested information, the Bureau must have on file the county summary sheets from all counties in the country. It is urged, therefore, that the states which have not yet returned summary sheets from all their counties do so at the earliest possible opportunity.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CONNECTICUT

Personal.—Dr. Henry B. Rollins, Hartford, associate medical director since 1931, has been named medical director of the Connecticut Mutual Life Insurance Company to succeed Dr. Charles B. Piper, Hartford, who has been made director emeritus after fourteen years in the position.

Construction of Hartford Hospital to Start Soon.—Approval has been given under a proposed building program given for the immediate construction of the Hartford Hospital, to cost $6,500,000. The unit will include a new thirteen story main building. The work of clearing the site will start immediately, according to the September state medical journal, and it is hoped that the foundations may be completed before winter.

Medical Advisory Committee for Cancer Society.—The requirement that a majority of the trustees of the Connecticut Cancer Society must be members of the committee on tumor study of the Connecticut State Medical Society was dropped from the by-laws at the recent annual meeting of the society. Instead the cancer society will have a medical advisory committee of seven members, nominated each year by the committee on tumor study to initiate or consider all proposals for the use of the society's funds for medical purposes. Educational activities will be supervised by a public education committee of five members, while a finance committee of five business men will supervise the management of the society's funds. Dr. Abraham N. Creadick, New Haven, was elected president of the cancer society, Ira V. Hiscock, C.P.H., New Haven, vice president, Dr. Joseph O. Collins, Waterbury, secretary and Charles F. Lewis treasurer. Members of the medical advisory committee are Dr. Alfred L. Burgdorf, Hartford, chairman; Dr. Wilmar M. Allen, Hartford; Dr. Howard S. Colwell, New Haven; William U. Gardner, Ph.D., New Haven; Dr. Joseph I. Linde New Haven; Dr. George M. Smith, Pine Orchard, and Dr. Donald B. Wells, Hartford.

ILLINOIS

Personal. — Dr. and Mrs. Charles E. Trovillion, Alton, observed their fiftieth wedding anniversary August 19.——Dr. Edward R. Hays, Omaha, has been elected director of health education for the Evanston schools.

Chicago

Stewart Thomson Returns as Assistant Dean. — Dr. Stewart C. Thomson on September 10 resumed his activities as assistant dean of the Loyola University School of Medicine. Dr. Thomson was recently released from service, after serving for the past seventeen months as chief of the collection branch in the medical intelligence division of the preventive medicine service and as the liaison officer between the Office of the Surgeon General and G-2, War Department General Staff.

Application of Atomic Research to Disease.—An institute to apply the discoveries of atomic research to such problems as cancer, heredity and growing old has been established at the University of Chicago. Raymond E. Zirkle, Ph.D., Springfield, Ill., a botanist who has specialized in the effect of radiations on living organisms, will be in charge of the new department, the institute of radiobiology and biophysics. Members of the new institute will work in cooperation with the institute of nuclear studies. This arrangement is part of the university's plan to further fundamental research in fields which were kept secret or neglected during the war.

Lying-In Hospital Observes Fiftieth Anniversary. — A special program will be held October 29 at the Chicago Lying-In Hospital to observe the fiftieth anniversary of its founding. The hospital was established in 1895 by Dr. Joseph B. De Lee. In addition to clinics being conducted by members of the staff, the following will participate:

Dr. Frederick C. Irving, Boston, A Blood Bank for a Lying-In Hospital.
Dr. Edwin C. Hamblen, Durham, N. C., Some Contributions of Endocrinology to Obstetrics and Gynecology.
Dr. Norman F. Miller, Ann Arbor, Mich., Hysterectomy—Therapeutic Necessity or Surgical Racket?
Dr. Henricus J. Stander, New York, Teaching of Obstetrics and Gynecology.

KANSAS

Personal.—Dr. Thomas E. Johnston has resigned as medical director of the Security Benefit Association, Topeka, to become gynecologic surgeon for the Dr. Robert H. Adams clinic, Oklahoma City.——Dr. Grant R. Hastings, Garden City, has been named a member of the Kansas State Board of Health by Governor Andrew Schoeppel. Dr. Hastings will fill the unexpired term of Dr. John L. Lattimore, Topeka, ending in March 1946, resigned (THE JOURNAL, March 24, p. 723).

Changes at University.—Dr. Joseph E. Welker, associate professor of medicine, University of Kansas School of Medicine, Kansas City, has been appointed clinical professor. Drs. Don C. Peete, Arthur Graham Asher and Orval R. Withers, all of Kansas City, Mo., have been advanced to associate professorships in medicine and Dr. Albert T. Steegmann to associate professor in psychiatry. Dr. Benjamin L. Elliott, Kansas City, Mo., has been promoted to assistant professor of psychiatry.

Members of Health Education Council.—Dr. Ralph I. Canuteson, Lawrence, representing medicine, L. W. Brooks, Topeka, the state superintendent of education, and Dr. Floyd C. Beelman, Topeka, executive director of the state board of health, have been named as members of the Kansas Health Education Council to direct a statewide school health study. (THE JOURNAL, March 24, p. 723 and July 21, p. 892). An advisory committee of some twenty members is to be named, the appointments to be made probably sometime in the fall, when more definite steps are expected to be adopted for pursuing the program.

KENTUCKY

Field Director of County Health Work.—Dr. Ralph Gregg, senior surgeon, U. S. Public Health Service, has been assigned to the Kentucky State Health Department to serve as field director in the division of county health work. Dr. Gregg, who recently returned from London, was formerly liaison officer to the Fifth Service Command headquarters at Columbus, Ohio.

MICHIGAN

Courses in Public Health.—The University of Michigan School of Public Health, Ann Arbor, is announcing an inservice training course in environmental controls for industrial processes October 2-4, with special reference to metal working industries. Another course will be held October 8-11 on public relations, staff education and community health education for health directors. Additional information may be obtained from the School of Public Health Building, 109 South Observatory Street, Ann Arbor.

Physician Wins Reversal of Sentence.—Dr. Fred W. Thomas, Detroit, on September 17 won reversal of a sixteen year sentence imposed in 1944 in Detroit on a charge of conspiring to violate the wartime espionage act (THE JOURNAL, July 8, 1944, p. 729). The sixth circuit court of appeals, meeting in Cincinnati, citing error in a charge delivered by District Judge Edward J. Moinet, ordered retrial of the case, newspapers reported. The opinion reversing the original decision set forth that although Dr. Thomas was charged with "conspiracy" to violate the act, Judge Moinet had told the jury he was charged with violation of the statute. The physician was accused of supplying Germany with espionage information of war production and troop movements.

MINNESOTA

Award to Civilian for Service to Army Air Forces.—In recognition of his contribution to the Army Air Forces and the nation's war effort, Edward J. Baldes, Ph.D., Rochester, recently received the army's highest award that is available to civilians, according to the *Clinic Bulletin*. The citation accompanying the ribbon was signed by Secretary of War Henry L. Stimson and was presented at an outdoor ceremony in front of the Aero Medical Laboratory at Wright Field, Dayton, Ohio, by Brig. Gen. L. C. Craige, chief of the engineering division of the Air Technical Service Command. The citation was given in recognition of his work in the design of special centrifuge devices. His exceptional ability and outstanding service have contributed immeasurably to the flying safety of American aviators and provided the Army Air Forces with the finest scientific knowledge available.

NEW YORK

James McCartney Opens Neuropsychiatric Clinic.—Dr. James L. McCartney is opening a clinic in Garden City, where he will place special emphasis on the neuropsychiatric problems of returned officers and their families. Dr. McCartney, who was released from active duty in the Navy September 10, was serving as chief of the neuropsychiatric department of a naval base hospital in the Marianas Islands.

Memorial at Buffalo Hospital.—A total of $98,700 was subscribed to the building fund of Buffalo General Hospital, Buffalo, by Spencer Kellogg and Sons and Mr. and Mrs. Howard Kellogg Sr. Of the total gift, $67,500 is to be used to build, furnish and equip an intern's laboratory, basal metabolism department and a chemistry lecture room on the second floor of the hospital, all to be dedicated to the memory of Spencer Kellogg, founder of the company. Two nurseries on the tenth floor will be established with the $24,000 gift of Mr. and Mrs. Kellogg, also to be memorials to relatives of the Kellogg family. The remainder of the gift will be used to dedicate a 4 bed room in memory of members of the family.

Mental Hygiene Lectures.—"The Mental Hygiene of Personal Counseling" will be the theme of an institute at the Hotel Onondaga, Syracuse, beginning September 24. The course is designed for physicians and interested lay persons and includes:

Lawrence K. Frank, director, Fochry Institute, New York, Mental Hygiene Aspects of Family and Social Life, September 24.
Dr. Exie E. Welsch, director, Child Guidance Center, Rochester, Mental Hygiene Aspects of Growing Up, October 1.
Luther E. Woodward, Ph.D., field consultant, National Mental Hygiene Committee, New York, Interviewing and Counseling Methods, October 8.
Dr. Helen Flanders Dunbar, director of psychosomatic research, Presbyterian Hospital, New York, Psychosomatic Reactions in Interpersonal Relations, October 17.
Dr. Matthew Brody, consulting psychiatrist, Sperry Gyroscope Company, Brooklyn, Industrial Psychiatry, October 22.
Dr. George K. Pratt, psychiatrist, Westport, Conn., Personality and Emotional Disorders, October 29.
Dr. Edward A. Strecker, professor of psychiatry, University of Pennsylvania School of Medicine, Philadelphia, Alcoholism, November 5.

Seminars on Rheumatic Fever and Rheumatic Heart Disease.—The St. Francis Sanatorium for Cardiac Children, Roslyn, announces a course of seminars on rheumatic fever and rheumatic heart disease Tuesday and Thursday of each week beginning October 2 and ending November 1. The course will cover epidemiology, prevalence, etiology and immunology; pathology; clinical course of disease; laboratory aids in diagnosis; public health aspects and care and management. The faculty will be:

Dr. Cary Eggleston, associate professor of clinical medicine, Cornell University Medical College, and New York Hospital, New York.
Dr. Oswald Fenton Hedley, surgeon, U. S. Public Health Service.
Dr. Thomas Duckett Jones, assistant professor of medicine, Harvard Medical School, Boston, House of Good Samaritan.
Dr. John Rodman Paul, professor of preventive medicine, Yale University School of Medicine, New Haven, Conn.
Dr. Homer Fordyce Swift, Hospital of the Rockefeller Institute of Medical Research, New York.
Dr. Leo M. Taran, medical director, St. Francis Sanatorium for Cardiac Children, Roslyn.
Dr. William Carson Von Glahn, director of pathology at Bellevue Hospital and professor of pathology at New York University College of Medicine.
Dr. May Georgiana Wilson, associate professor of clinical pediatrics, Cornell University Medical College and New York Hospital.

New York City

Personal.—Dr. William A. Boyd recently observed his fiftieth year in the practice of medicine. Dr. Boyd was the first vice president of the Bronx County Medical Society when it was chartered. He was one of the organizers of the Bronx Medical Association, serving as its president in 1910 and later as treasurer.

Brooklyn Cancer Committee.—The Brooklyn Cancer Committee was recently organized, with Dr. Samuel Potter Bartley as chairman, to carry out a comprehensive lay program of education on cancer control. Dr. Bartley is chairman also of the cancer committee of the Medical Society of the County of Kings. An advisory council has been set up consisting of thirty-two Brooklyn physicians.

Special Committee on Psychosomatic Medicine.—The Medical Society of the County of New York has created a special committee on psychosomatic medicine to be composed of Drs. Carl A. L. Binger, chairman, Harold G. Wolff, Edwin G. Zabriskie and George E. Daniels. While a general program has not yet been formulated, the new committee will probably aid physicians in general practice in meeting psychosomatic problems encountered in their daily work.

Dean Clark Named Medical Director of La Guardia's Health Plan.—Dr. Dean A. Clark, assistant director, public health methods division, senior surgeon, U. S. Public Health Service, has been granted a leave to become medical director of the Health Insurance Plan of Greater New York, the health insurance project sponsored by Mayor Fiorello La Guardia (THE JOURNAL, Nov. 4, 1944, p. 648). Dr. Clark took up his new activities August 1, according to *New York Medicine*.

Adolf Magnus-Levy Honored.—On September 10 a reception was held at Sherry's to honor Dr. Adolf Magnus-Levy on his eightieth birthday. Dr. Magnus-Levy, who came to the United States from Germany about four years ago, is known for his researches in metabolism and on acidosis. Dr. Emanuel Libman gave the introductory address, and other speakers included Dr. Eugene F. Du Bois, professor of physiology, Cornell University Medical College, and Dr. Kurt M. Grassheim, a pupil of Dr. Magnus-Levy. Dr. Magnus-Levy joined the staff of Yale University, New Haven, Conn., in 1941 as research associate in physiology.

Friday Afternoon Lecture Series.—The twentieth series of Friday Afternoon Lectures of the New York Academy of Medicine starts as follows:

Dr. Hattie Elizabeth Alexander, Treatment of Influenza Bacillus Infections in Childhood, November 2.
Dr. Edward Tolstoi, Diabetes: Newer Aspects of Management, November 9.
Dr. John R. Paul, New Haven, Conn., Infectious Hepatitis (A. Walter Suiter Lecture under auspices of the committee on public health relations), November 16.
Dr. Cary Eggleston, Newer Chemotherapeutic Agents, November 30.
Dr. William Dock, Senescence of the Myocardium—Presbycardia, December 7.
Dr. Arthur C. DeGraff, The Therapeutic and Toxic Actions of Some Drugs Recently Introduced in the Treatment of Cardiac Disorders, December 14.
Dr. Ralph L. Barrett, Hemorrhages in the Viable Period of Pregnancy, December 21.

OHIO

Personal.—Dr. Arda Alden Green, formerly assistant professor of biochemistry in the Washington University School of Medicine, St. Louis, is now associated with the research division of the Cleveland Clinic. Dr. Green's latest important contribution has been the successful crystallization of phosphorylase from muscle. She will continue biochemical investigation in connection with vascular disease.——Dr. C. Herbert Cronick has resigned as medical director of the Youngstown Receiving Hospital for Mental Cases; the hospital was recently leased by the state department of public welfare (THE JOURNAL, January 6, p. 46).

Cincinnati Academy Opens Scientific Season.—The annual meeting of the Academy of Medicine of Cincinnati was held September 18 and marked the opening of the academy's program for the coming year. Among the speakers at the forthcoming sessions will be:

Dr. Marion A. Blankenhorn, Cincinnati, October 2, Persistent Problems of Pneumonia.
Dr. George X. Schwemlein, Chicago, October 16, The Present Status of Penicillin in the Therapy of Syphilis.
Dr. Jerome W. Conn, Ann Arbor, Mich., November 6, Some Problems Related to Insulin Action.
Dr. George T. Pack, New York, November 20, The Extension of Radical Surgery in the Treatment of Cancer.
Dr. Jules H. Masserman, Chicago, December 4, Experimental Approach to the Understanding of Neurotic Symptoms.

PENNSYLVANIA

District Meeting.—The annual meeting of the Second Councilor District of the Medical Society of the State of Pennsylvania was held September 5 in Llanerch. Speakers included:

Dr. William Bates, president, state medical society, Philadelphia, The Activities of the State Medical Society.
Dr. Chauncey L. Palmer, Pittsburgh, Comments on Proposed Social Legislation.
Dr. Chevalier L. Jackson, Philadelphia, Current Trends in the Diagnosis and Treatment of Bronchial Disease.

Fifty year testimonials will be presented to the following by Dr. Walter F. Donaldson, Pittsburgh, secretary of the state medical society:

Dr. Irvin H. Hartman, Reading.
Dr. Samuel Banks Taylor, Reading.
Dr. Leroy Y. Lechner, Bechtelsville.
Dr. Henry A. Rothrock, West Chester.
Dr. Mary McD. Shick, Elwyn.
Dr. Thomas E. Wills, Pottstown.

The county medical societies of Berks, Bucks, Chester, Delaware, Lehigh and Montgomery compose the Second Councilor District.

Philadelphia

Industrial Health Problems. — The industrial hygiene bureau of the Pennsylvania Department of Health sponsored a conference on industrial health problems at the Benjamin Franklin Hotel, September 25-26. Among the speakers were:

Lyman D. Heacock, senior dental surgeon, U. S. Public Health Service Reserve, Prevention of Oral Diseases of Occupational Origin.
Dr. Louis Schwartz, medical director, U. S. Public Health Service, Prevention of Industrial Dermatoses.
Dr. Charles Francis Long, Philadelphia, Illness in Industry.
Dr. Glenn S. Everts, Philadelphia, Industrial Health in Small Plants.
Dr. Harvey Bartle, Philadelphia, Medical Criteria in the Reconversion Program.
Mr. J. J. Bloomfield, senior sanitary engineer, U. S. Public Health Service, Integration of Industrial Health in the Public Health Program.
Dr. Victor G. Heiser, New York, Value of Industrial Health to Management.
Dr. Leonard A. Kagen and Mr. E. L. Schall, industrial hygienist, Trenton, N. J., Environmental Conditions in Plants Molding Lead Plastic Bullets.
Dr. C. Charles Burlingame, Hartford, Conn., Mental Health in Industry.
Dr. Charles F. Kutscher, Pittsburgh, Industrial Ophthalmology.

WASHINGTON

Tuberculosis Building Commission.—The last legislature appropriated a three million dollar fund to construct tuberculosis institutions in Washington and provided for the creation of a state tuberculosis building commission. Members of the commission named by Governor Wallgren include Tom Jones Parry, Seattle, advertising executive; Dr. Ottar A. Thomle, Everett; Louis Schaefer, Vancouver, attorney; Lloyd L. Wiehl, Yakima, county prosecutor; Ab Ruhl, Spokane, union executive, and Arthur H. Brouse, Tacoma, bank executive.

State Health Department Activities.—Dr. S. Harvard Kaufman, formerly psychiatric consultant with the Children's Aid Society and Children's Service Bureau in Pittsburgh, has been appointed director of the mental hygiene section of the Washington State Department of Health. The section was transferred from the division of local health services to the division of preventive medical services and constitutes a continuance of reorganization of the state department of health (THE JOURNAL, February 3, p. 288). Dr. George C. Stevens, who was head of the mental hygiene section when it was created, has resigned to engage in private practice in Seattle. The reorganization includes the establishment of a division of public health nursing with Anna R. Moore, R.N., chief, a venereal disease control section with Dr. Walvin R. Giedt as acting head and an epidemiology section with Dr. Giedt as head. Both of these sections are in the division of preventive medical services, and the public health nursing division was formerly a section under the division of local health services and the venereal disease control and epidemiology sections formerly were a part of the communicable disease control section. The state department of health announces the issuance of a new stillbirth certificate to be used in the state as authorized by the last session of the legislature. Under the new definition, all births occurring without evidence of life after the twentieth week of gestation will be regarded as stillbirths. This is in contrast to the seven month figure as given in the old law. After September 1, only the new certificate will be acceptable for filing a stillbirth.

WEST VIRGINIA

Personal.—Major Michael G. Hresan, M. C., Minden, is serving as physician to Arthur Bliss Lane, American ambassador to Poland, and the members of his staff, at Warsaw. According to a letter received by the West Virginia State Medical Association from Major Hresan, he is the first American officer to be stationed in Warsaw since 1939.

WISCONSIN

$25,000 for Cancer Research. — The governor recently signed a bill appropriating $25,000 annually "for study of and research into the causes, prevention and cure of cancer and for the purchase of necessary apparatus and supplies for the purpose of carrying on such study and research." The appropriation was earmarked for July 1.

Albert Edwards Named Health Officer of Racine.—Dr. Albert C. Edwards, Port Huron, Mich., director of the St. Clair County health department, has been named health officer of Racine, to succeed Dr. Ira F. Thompson, who resigned (THE JOURNAL, June 30, p. 678). Dr. Edwards graduated at the University of Nebraska College of Medicine, Omaha, in 1925. He was formerly employed by the Wisconsin State Board of Health and at one time served as director of the district health department number 5 at White Cloud, Mich.

GENERAL

Export and Import of Narcotic Drugs.—The Bureau of Narcotics, U. S. Treasury, on August 24 released a statement concerning the granting of permits to import or export narcotic drugs. Additional information may be obtained from the Bureau of Narcotics, Washington 25.

Ambulatory Fracture Meeting.—The Ambulatory Fracture Association will hold its sixth annual meeting in the Club Building at the Palmer House, Chicago, October 26-27. The meeting will be continued in Bloomington, Ill., October 29-30, where operative clinics and clinical conferences will be held. Dr. Alvin H. Diehr, St. Louis, is president of the association and Dr. Hermann W. Wellmerling, Bloomington, secretary-treasurer.

National Employ the Physically Handicapped Week.—President Truman on August 11 signed a bill which sets apart the first week in October of each year as National Employ the Physically Handicapped Week. The observance was set up in H. J. Res. 23 and is now Public Law 176. Appropriate ceremonies are to be held throughout the nation to enlist public support for an interest in the employment of otherwise qualified but physically handicapped workers.

French Radiologists Ask for Reprints.—Radiologists in France have appealed to radiologists in the United States to send them reprints from 1939 of their articles concerning radiology (diagnostic), roentgen therapy, radium therapy and neutron therapy, electrology and cancerology. The appeal was written to Dr. Ursus V. Portmann, Cleveland, by Dr. Robert Coliez, president of the Hospital Radiologists of Paris, who requests that reprints should be addressed to him at 25, Rue Franklin, Paris, XVIème.

Biologists Urge Educational Program on Experimental Work.—The Pacific Coast Section of the Society for Experimental Biology and Medicine recently passed a resolution endorsing the creation of a bureau of public relations to educate the public concerning current legislation and campaigns to limit biologic experimentation. One resolution stated that the section deplored "the campaign being waged at this time to limit biological experimentation by means of antivivisection legislation in state and in national legislatures."

Association of Military Surgeons.—The Association of Military Surgeons of the United States will hold its next annual session in Detroit Oct. 9-11, 1946. The 1945 meeting was deferred. Any correspondence relative to the scientific program should be addressed to Dr. William D. Ryan, 5837 West Vernor Highway, Detroit 4, and any correspondence relative to the commercial exhibits should be addressed to Mr. Steven K. Herlitz, 280 Madison Avenue, New York 16. Major Carleton Fox, Dental Reserve, U. S. Army, is the general chairman, 557 David Whitney Building, Detroit 26.

Examination in Obstetrics and Gynecology.—The next written examination and review of case histories (Part I) for all candidates will be held in various cities of the United States and Canada on Saturday, February 2. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year. All applications must be in the office of the secretary of the American Board of Obstetrics and Gynecology by November 1. All candidates are now required to be out of medical school eight years, and in that time they must have completed an approved one year internship and at least three years of approved special formal training, or its equivalent by the preceptorship method under a recognized obstetrician-gynecologist or a specialist certified by this board, in the seven years following the intern year. Additional information may be obtained from the secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

Insurance Company Launches Campaign Against Cancer.—The Metropolitan Life Insurance Company will conduct a special campaign for the control of cancer during October. The program will include the distribution to practicing physicians of a special packet of new information on cancer, including the booklet of the American Cancer Society entitled "The General Practitioner and the Cancer Patient," a reprint of recent studies of cancer mortality prepared by the company's statisticians; a reproduction of the company's educational advertisement "Cancer Has Its Hopeful Side!" and a copy of the company's new leaflet for laymen "There is Something *You* Can Do About Cancer." According to an announcement from Metropolitan, in the past decade the age adjusted death rate from cancer insured white females dropped 11 per cent at ages 1 to 74. The current mortality from the disease among women in the broad age range 35 to 64 is the lowest

in a third of a century, having dropped by one fifth during that period. Among white male policyholders, during the past decade, at no age beyond 25 years has the cancer death rate shown any increase.

Thomas Gentry Named Medical Director of American Airlines.—Col. Thomas C. Gentry, surgeon, 14th Air Force, M. C., United States Army, has been appointed medical director of the American Airlines, Inc., effective September 1. He succeeds Lieut. Col. Edward C. Greene, M. C., U. S. Army, retired. Following his graduation at Baylor University College of Medicine, formerly of Dallas and now of Houston, Dr. Gentry entered the army medical corps as an intern and in 1931 he graduated from the School of Aviation Medicine as a flight surgeon. In 1934 he resigned his army commission to enter private practice at Hamlin, Texas. He reentered the army as a reserve officer in 1935. In 1941 he gave up his commission to organize the medical service of the original Flying Tigers, going to China as chief surgeon of the American Volunteer Group, the original Flying Tigers. When the American Volunteer Group became part of the U. S. Army Air Force in June 1942, Colonel Gentry continued working under Gen. Claire L. Chennault, founder of the Flying Tigers and commanding general of the succeeding China Air Task Force and the 14th Air Force.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended September 15 have been received from the division of public health methods, U. S. Public Health Service, as follows:

	Week Ended Sept. 15, 1945	Week Ended Sept. 16, 1944
New England		
Maine	8	1
New Hampshire	1	6
Vermont	0	2
Massachusetts	45	28
Rhode Island	0	0
Connecticut	15	12
Middle Atlantic		
New York	148	497
New Jersey	87	54
Pennsylvania	95	123
East North Central		
Ohio	31	118
Indiana	8	24
Illinois	66	44
Michigan	16	112
Wisconsin	39	31
West North Central		
Minnesota	25	40
Iowa	46	13
Missouri	24	4
North Dakota	1	5
South Dakota	0	1
Nebraska	18	4
Kansas	8	9
South Atlantic		
Delaware	1	6
Maryland	8	54
Dist. of Columbia	5	16
Virginia	19	46
West Virginia	3	10
North Carolina	6	28
South Carolina	5	0
Georgia	2	5
Florida	11	4
East South Central		
Kentucky	2	40
Tennessee	15	11
Alabama	3	5
Mississippi	3	3
West South Central		
Arkansas	5	1
Louisiana	6	2
Oklahoma	20	2
Texas	44	10
Mountain		
Montana	10	3
Idaho	2	1
Wyoming	1	0
Colorado	16	7
New Mexico	2	2
Arizona	1	2
Utah	22	2
Nevada	0	1
Pacific		
Washington	25	14
Oregon	1	12
California	46	25
Total	965	1,440
First 37 weeks:		
1945 and 1944	8,012	12,412
Median, 1940-1944	5,204	

LATIN AMERICA

Health Activities in Latin America.—*Merchant Marine Dispensary.*—On July 2 a dispensary for merchant seamen to be known as the Merchant Marine Dispensary was opened under the auspices of the Panama Canal Health Department and the War Shipping Administration. The unit will ease the pressure on the Colon Hospital, Cristobal, C. Z., which has been caring for seamen. The services at the clinic will be in charge of a staff consisting of two health department physicians, two U. S. Public Health Service dentists, one psychiatrist and two pharmacist's mates.

Pan American League for Study and Control of Rheumatic Diseases.—The establishment of a Pan American League for the Study and Control of Rheumatic Diseases was recently announced. Representatives include Argentina, Brazil, Canada, Chile, Mexico, Paraguay, Peru, Uruguay and the United States. Officers are Drs. Ralph Pemberton, Philadelphia, president; Anibal Ruiz-Moreno, Buenos Aires, vice president; Loring T. Swaim, Boston, secretary, and Fernando Herrera Ramos, Montevideo, Uruguay, treasurer. The objectives of the league are to strengthen the cultural bonds between the countries of North and South America, to further efforts to alleviate suffering from rheumatic diseases and to institute measures of prevention, to compile and disseminate knowledge and information regarding rheumatism in the respective countries, to unify the nomenclature and classifications, to promote scientific investigation and to hold Pan American congresses on the rheumatic diseases. The idea to create the league had its origin with Dr. Ruiz-Moreno and his colleagues in Buenos Aires. Indirectly it stemmed from the Ligue internationale contre le rhumatisme. The original prospectus of the Pan American League expressly set forth that it is in no sense meant to act as a substitute for the Ligue internationale but rather as an amplification and implementation of the older league's purposes.

Latin Americans Assist in UNRRA Program.—Eight doctors from Colombia and five from Venezuela have come to UNRRA to work on its program of medical and health assistance now carried on in the liberated areas of Europe. The doctors are at present at the UNRRA training center at the University of Maryland, where they are taking a two weeks orientation course before leaving for overseas. From Colombia are Drs. Hector Acevedo, Bogota; Gustavo Gomez-Hurtado, Bogota; Alfonso Gomez, Bogota; Jorge Jimenez, Bogota; Ganzalo Montes, Bogota; Gerardo Paz, Popayan; Carlos Quintero Hernandez, Barranquilla, and Alvaro Ujueta, Bogota. From Venezuela are Drs. Imelda Campo, Caracas; Victor Estaba Acuna, Caracas; Juan Alberto Gambus, Maiquetia; Francisco Emilio Rodriguez, Barquisimeto, and Claudio G. Vargas Mendoza, Tovar Estado Merida. The Colombians and Venezuelans are the fourth group of doctors to come to UNRRA for European service. Nine Cuban doctors left last week for overseas, eleven Mexican doctors are now at the training center and Brazil is sending a group directly to Reading, England. The doctors will be part of the 450 teams working at displaced persons assembly centers, where the millions of people who have been uprooted from their homes by Nazi aggression are given every possible aid in returning to their own countries as quickly as possible.

FOREIGN

Nuffield Foundation.—The central office of the Nuffield Foundation and Nuffield Provincial Hospitals Trust is now at 12-13 Mecklenburgh Square, London, W. C. 1, according to the *Lancet*. Mr. L. Farrer-Brown has taken up his duties as secretary of both organizations.

Cancer Research Fund.—A gift of £10,000 to the Sheffield Radium Center to create a fund for research in radiotherapy of cancer has been made by Mr. James Morrison, accountant and estate agent. The fund has been named after his brother David, in whose memory it has been founded, and it will be used to establish a research department at the center for the study of new methods of irradiation, according to the *Lancet*. Supervoltage x-ray equipment and a radium-beam unit are to be installed. The trustees of the fund, nominated by Mr. Morrison, are Dr. Charles Sydney Atkin, Dr. George W. Bloomfield, medical director of the center, and Mr. F. M. Osborn, deputy chairman of the Royal Sheffield Infirmary and Hospital.

Physicians in Parliament.—With the recent election of Sir John B. Orr as one of the members for the Scottish universities, the total number of physicians who will sit in the new parliament is fourteen. Sir John is director of the Rowett Research Institute and the Imperial Bureau of Animal Nutrition. The following were members of the last parliament: Drs. Leslie Haden Guest, H. B. W. Morgan, Sir John Henry Morris-Jones, Basil H. H. Neven-Spence, Sir Ernest G. Graham-Little and Edith C. Summerskill. Dr. Somerville Hastings returns after an interlude of local government. Others are Drs. Louis Comyns, Santo W. Jeger, Samuel Segal, Malcolm Stoddart-Scott, Barnet Stross and Stephen J. L. Taylor.

Rockefeller Foundation Offers Fellowships in Public Health.—The Rockefeller Foundation is offering a small number of fellowships to medical men and women of British birth who wish to take up public health as a career. The fellowships will usually be awarded for two years, and their annual value will be between £450 and £800. Traveling expenses will be paid during residence abroad. Candidates will be expected to have had some general clinical experience since registration, and service in the forces will be taken into account. Normally a fellow will be asked to spend not less than a year studying preventive medicine at the London School of Hygiene, when he will be given an opportunity to take the qualifying course for the DPH. He will also be expected to take part in teaching, to undertake a study or investigation approved by the committee of award and to work at institutions abroad during at least part of his tenure of the fellowship. No forms of application will be issued, but candidates should write informally to the dean of the London School of Hygiene, Keppel Street, London, W. C. 1.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 1, 1945.

The Socialist Government in Conflict with the British Medical Association

In the House of Commons a member of the government, Mr. Greenwood, made an attack on the minister of health of the late government, Mr. Willink, and charged him with opening discussions on the plan for a national health service with the British Medical Association behind the back of every one else. Mr. Willink pointed out that Mr. Tom Johnson, a member of the Labor party, had been associated with him in these discussions. Mr. Greenwood said that the present government would not start where these negotiations had finished. It must go back to the white paper, and its task would be more difficult because of the unnecessary concessions which Mr. Willink had made. In the House of Lords another member of the government, Lord Addison (formerly a professor of anatomy), said that there would be departures from decisions which Mr. Willink seemed to have reached *in camera* with various parties. In a later debate Mr. Willink pointed out that the discussions were not only, or even primarily, with the British Medical Association: they were with the local authorities, the voluntary hospitals and with a body representative of the whole medical profession—the Royal Colleges, the health officers and the general practitioners. The British Medical Association representatives made about half of one of those three bodies. There were of course other discussions with pharmacists, dentists and other bodies. The local authorities disliked the proposal to transfer their hospitals to the joint boards. Both the voluntary hospitals and the medical profession claimed a fuller share in the planning of the future hospital and other services than was accorded to them in the white paper. The best opinion, both lay and medical, was unanimous that the scheme gave no adequate place to the influence which the universities with medical schools should be able to bring to bear on the planning and development of the hospital and health services. The voluntary hospitals and the doctors were apprehensive as to local authority control of their work. The general practitioners were among many who objected strongly to the powers proposed to be entrusted to a central medical board. By the end of May the negotiations had reached a stage where, without loss of a single service contemplated in the white paper, a structure had emerged likely to command such general agreement as was possible.

In a letter to the *Times,* Mr. Souttar, president of the British Medical Association, who has been concerned in the negotiations from the start, says that to accuse Mr. Willink of having made unjustifiable concessions to the medical profession is a complete misrepresentation. But for the election the discussions would have been published long ago. Mr. Souttar thinks that the negotiators convinced both Mr. Willink and his expert advisers that the proposals originally drafted were unworkable and not in the public interest. Speaking for the whole medical profession, he says that their one ambition is that the best possible service should be available to every member of the community. Whether any of the things agreed on will be accepted by the socialist government cannot yet be said, but it is recognized in the profession that the change of government is most detrimental to the hopes entertained of a satisfacory agreement.

Slight Fall in the Birth Rate

The wartime upward movement of the birth rate, which has been recorded from time to time in THE JOURNAL, was arrested in the first quarter of this year and showed a slight fall compared with the corresponding quarter of last year—a rate of 17 per thousand of population compared with 17.4. The rate was still well above the average of the five preceding first quarters, which was 15.2. The provisional infant mortality was 59 per thousand live births, 11 below the average of the ten preceding first quarters. The death rate was 15.1 per thousand, compared with 13.8 for the same quarter a year ago and an average of 16.0 for the corresponding quarters in the previous five years. Thus the improved vital statistics of the war period, reported previously in THE JOURNAL, have been maintained.

PARIS

(From Our Regular Correspondent)

Sept. 3, 1945.

Social Security Plan

At the last meeting of the Assemblée consultative the government presented for discussion a plan of social security in France. The French plan had to take into consideration the multiplicity of the existing social security organizations. There are nearly 900 social insurance funds, many of them private, and 23,000 mutual societies with 5½ million members. Fifty per cent of all these "funds" are organized on a district basis, 20 per cent are mutual, 10 per cent professional, 12 per cent Catholic and 8 per cent trade unionist. All these funds work independently of one another, their organization often overlapping. The method of contribution is complicated, as well as the payment allowances. The insured persons are often visited, for checking purpose, by three or four social workers of different funds. The general expenses of these funds amount to 10 to 12 per cent, and those of the industrial accident insurances even up to 30 per cent of the amount of the premiums. The present industrial accident insurance system, which is based on the law of 1898, is inefficient because the insurance is facultative. The family allowance funds are exclusively under the employers' direction.

The new plan proposes the regrouping of the insurance system on the general basis of compulsory mutual assistance, the type of which is indicated by the existing social insurance organizations. A single local social security fund is planned for all social risks: disease, maternity, death, industrial accidents, industrial sickness and family allowance. There will be only one contribution covering all social risks.

The administration of the new organization will present the following features:

1. The single local fund will be operated (based on the mutuality law) by a council composed of two thirds representatives of the insured persons (appointed by the trade unions) and of one third representatives of the employers and the staff of former funds and by two physicians designated by the council on proposal of the medical organization.

2. The district security council will be created to coordinate the work of the local funds and to look after the sickness claims. They will direct the medical control and the sanitary and social activity of all the funds assigned to their district. Only the district fund will be allowed to organize a social service. The district fund will be operated by the council, which will be constituted in the same way as the local funds.

3. A national social security fund will be organized which will direct the work of the national territory, as well as a superior council at the Ministry of Labor.

4. Taking into consideration the urgent repopulation problem of France, a superior committee for family allowances will be created.

THE ADVANTAGES OF THE NEW SYSTEM

The insured person will find in the vicinity of his home the service to which he has to apply. The task of the employers and of the administrative services will be considerably simplified by the single contribution paid to the local fund. In consequence of this reorganization a reduction in the number of the

funds to 200 is foreseen. Owing to the simplification of the organizations spoken of, 700 million francs will be saved yearly out of a total contribution estimated at 75 billions for 1945 and more than 100 billions for 1946. This coordination will allow organization of a preventive system of industrial accidents and sickness, which is insufficiently developed in France. All this will also contribute to the campaign against social diseases. At the same time the coordination of medical organization, fee rates, drug and hospital costs and medical checkup will be facilitated.

For the time being, the social security plan is limited to the reorganization of the existing system to make it the starting point of a larger plan tending to extend social security to all classes of the population, first of all to the workers and the middle classes. The plan submitted to the Assemblée consultative already involves all salaried persons in social insurance, independently of their age and even if they are pensioners or if they work for one or several employers. The Minister of Labor reported that another elaborate plan was ready for the complete reorganization of old age insurance and for the institution of a special method of indemnification and care of chronic diseases such as tuberculosis.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 2, 1945.

Alloxan and Tolerance to Dextrose in Rats

Drs. V. G. Foglia, O. Orias and J. Sara recently read a paper before the Argentine Society of Biology. They had performed experiments on rats either normal or pancreatectomized, placed in different lots of six rats each. Pancreatectomized rats had only 5 per cent of the pancreas. Pancreatectomy was performed one or two months before the experiment. The animals were kept fasting for fifteen hours before the experiment. Dextrose was administered by means of a gastric sound in a dose of 3 Gm. for each kilogram of body weight. Alloxan was intraperitoneally injected in a dose of 150 mg. for each kilogram of body weight. Dextrose produced transient hyperglycemia, which was more apparent in pancreatectomized rats than in normal rats. Alloxan produced moderate hyperglycemia in both normal and pancreatectomized rats. Hyperglycemia lasted for three to five hours and was followed by acute hypoglycemia. Dextrose and alloxan when given together produced subacute hyperglycemia of long duration in both normal and pancreatectomized rats, with a higher peak and longer duration in those pancreatectomized. Hypoglycemia did not follow. The animals in the two lots which had had an intraperitoneal injection of alloxan had a second injection one month after administration of the first injection. The second injection produced, very late, a transient mild hyperglycemia which was milder in the pancreatectomized rats. Hypoglycemia did not result. The administration of dextrose to pancreatectomized rats which had subdiabetogenic doses of alloxan after pancreatectomy produced hyperglycemia which was more acute and of longer duration than that which occurred in pancreatectomized rats which did not have alloxan after pancreatectomy.

Reunion of Medical Society

The Asociación Médica Argentina held its annual meeting during the third week of November 1944 in Santa Fe. The attendance was large. Delegates from Uruguay were present. There were the surgical sessions and three scientific sessions. The following topics were discussed: the diagnostic problem of meningitis with clear cerebrospinal fluid, by Dr. Juan Carlos Plá of Montevideo; rational nonbleeding therapy of the inexpansible nontuberculous lung, by Drs. Mariano R. Castex and Eduardo Luis Capdehurat; experimental diabetes: its contribution to the progress of medicine, by Dr. Bernardo A. Houssay; the importance of bronchoscopy in tuberculosis, by Dr. Justo Lopez Bonilla Jr.; mechanism of action of the digitalis bodies, by Dr. E. Noisset de Espanes; the x-ray appearance of the small intestine in nutritional deficiency, by Dr. Calixto J. Núnez; asthma and brucellosis, by Dr. Tomás de Villafane Lastra; the precordial electrocardiogram in bundle branch block, by Dr. Severo R. Amuchastegi; the value of gastroscopy in medicine, by Drs. Eugenio S. Weiler and Juan Nasio; film of preparations of experimental peptic ulcer, by Dr. Juan Nasio; thyroid syndromes, by Dr. Benigno Varela Fuentes of Montevideo; the surgical therapy of gastroduodenal ulcer, by Dr. Delfor del Valle; peptic ulcer after gastrectomy, by Dr. Pedro Invancich, and gangrenous abscess cured by nebulized therapy, by Drs. Nicolás Romano and Rodolfo A. Eyherabide.

Brief Items

Dr. Alois Bachmann, professor of microbiology of the Faculty of Medicine of the University of Buenos Aires, recently retired on account of having reached the limit of age for teaching. Dr. Ruperto Quiroga was appointed to the chair.

Dr. Manuel A. Viera of Buenos Aires was recently appointed general director of public health in the position rendered vacant through the resignation of Dr. Eugenio Galli.

A medicosurgical week was observed in the Britannic Hospital of Buenos Aires in October 1944 to celebrate the centenary of the founding of the hospital.

The representative of the Britannic Council of London in Latin America recently delivered a new equipment for anesthesia to Dr. Alberto Gutiérrez. It is a donation of Dr. R. R. Mackintosh, professor of anesthesiology of the University of Oxford, to the Faculty of Medicine of Buenos Aires.

An institute of aeronautical medicine was recently opened in the National School of Aeronautics in Buenos Aires. It offers a postgraduate course for physicians covering seven consecutive months.

Deaths

Dr. Pío del Río Hortega, Spanish histologist of the nervous system and disciple of Ramon y Cajal, died in Buenos Aires on June 1, where he had lived for several years to preserve his democratic ideals. He founded a laboratory and a school in which he worked and taught constantly. Dr. del Río Hortega discovered the microglia and its physiologic and pathologic meaning in 1919; later on he discovered the aligodengroglia and the neuroglia. His work on the neuroglia of the nerves and its ends, on tumors of the nervous system, on the structure of the pineal body and on many other histologic aspects of the nervous system are well known.

Dr. Kallas, professor of physiology of the Faculty of Medicine of the University of Concepción, Chile, died recently.

Marriages

MILTON THOMAS EDGERTON JR., Atlanta, Ga., to Miss Patricia Jane Jones of Forrest Hills, L. I., N. Y., June 30.

ALEXANDER WASHINGTON MARSHALL, Charleston, S. C., to Miss Sylvia Willis Russell of Haddam, Conn., July 25.

GUY ZIMMERMAN JR., Mount Sterling, Ky., to Miss Margaret Wells of Nashville in Miami, Fla., July 25.

JAMES MCGREW LAMME JR., Walsenburg, Colo., to Miss Patricia Maria Lord of Calais, Maine, June 20.

CATHERINE BIRD HOOVER, Richmond, Va., to Lieut. Fordyce Cox Stone of Binghamton, N. Y., August 6.

TREADWELL LEWIS IRELAND, New York, to Mlle. Colette Marie Charlotte Torchet in Paris, July 30.

JOHN HAL JAMESON, Easley, S. C., to Miss Charlotte Christine Crawford of Savannah, Ga., August 4.

MARION BATES LEVERETT, McGehee, Ark., to Miss Betty Jane Perryman of Fort Smith, July 25.

HENRY THOMAS GRAY, Forrest City, Ark., to Miss Johanna Janke of Ponca City, Okla., in July.

Deaths

John Aloysius Quin, Rahway, N. J.; Temple University School of Medicine, Philadelphia, 1934; born in Carteret, N. J., Nov. 6, 1906; member of the American Medical Association and the Academy of Medicine of Northern New Jersey; an honorary member of the New Jersey State Firemen's Association; interned at St. Joseph's Hospital in Yonkers, N. Y.; served a residency at Newcomb Hospital in Vineland; company surgeon for the Pennsylvania Railroad; served as member of the board of water commissioners in Rahway and as examiner and surgeon for the Public Service Company in New Jersey; medical consultant to the Union County Mental Hygiene Society; a member of the medical advisory committee of the local Red Cross nursing service; member of the staffs of the Elizabeth General and St. Elizabeth hospitals in Elizabeth; president of the staff of the Rahway Memorial Hospital, where he died June 30, aged 38, of carcinoma of the stomach.

William Waddle Richardson ✠ Mercer, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; born in Athens, Ohio, Oct. 8, 1877; specialist certified by the American Board of Psychiatry and Neurology, Inc.; fellow of the American College of Physicians; member of the American Psychiatric Association, Association for Research in Nervous and Mental Disease and the Central Neuropsychiatric Association; past president of the Mercer County Medical Society; served in France during World War I; director of the public library and the First National Bank; president of the local Rotary Club; consulting neuropsychiatrist to the Buhl Hospital in Sharon; part owner and medical director of the Mercer Sanitarium, where he died June 10, aged 67, of cerebral hemorrhage.

Edgar Lee Sanderson, Shreveport, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1908; member of the American Medical Association; fellow of the American College of Surgeons; chairman of the advisory board for the draft in western Louisiana during World War I; past president of the Shreveport Medical Society and the Louisiana State Hospital Association; served as vice president of the Louisiana State Medical Society; served as medical superintendent of the Shreveport Charity Hospital; member of the staffs of the North Louisiana and T. E. Schumpert Memorial sanitariums; died in the Highland Sanitarium June 7, aged 66, of melanosarcoma.

Michael Valentine Ball ✠ Warren, Pa.; Jefferson Medical College of Philadelphia, 1889; at one time professor of clinical pathology at the New York Medical College and Hospital for Women, Homeopathic, New York; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Ophthalmology; past president of the Warren County Medical Society and the board of health of Warren; at one time school physician; on the courtesy staff of the Warren General Hospital; on the consulting staff of the Warren State Hospital; died May 26, aged 77, of coronary occlusion.

Joe Getty Reed, Larned, Kan.; University of Kansas School of Medicine, Kansas City, 1941; member of the American Medical Association; interned at Robert Pecker Hospital in Sayre, Pa.; began active duty as a first lieutenant in the medical corps, Army of the United States, on Oct. 26, 1942; served as flight surgeon with the air force at Fort George Wright, Wash., and in New Guinea and the Dutch East Indies, returning to this country because of ill health; relieved from active duty on Feb. 25, 1945, with the rank of captain; died in Los Angeles April 18, aged 31.

Hardie Lynch, Santa Monica, Calif.; Medico-Chirurgical College of Philadelphia, 1902; since 1920 affiliated with the Veterans Administration; for many years chief surgeon at the Veterans Administration Facility in Salt Lake City; formerly bacteriologist and assistant health commissioner for the board of health of Salt Lake City; served during World War I; at one time worked in the Panama Canal Zone as bacteriologist and pathologist for General Gorgas when the latter was in charge of health and sanitation there; died May 26, aged 68.

Charles Matthew Adams, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; member of the American Medical Association; on the staffs of the Crawford W. Long Memorial Hospital and St. Joseph Infirmary; died July 3, aged 73, of circulatory failure.

John Ambrose Miller Aspy ✠ Indianapolis; Indiana University School of Medicine, Indianapolis, 1917; associate in orthopedic surgery at his alma mater; examiner for the Selective Service Board; served overseas in World War I; on the staffs of the City Hospital, St. Vincent's Hospital and the Methodist Hospital, where he died June 12, aged 52, after a thyroidectomy.

Edward Francis Bacon ✠ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1904; served in this country and abroad during World War I; for many years associated with the city and state boards of health; died in the Hotel Dieu June 5, aged 70.

Willis L. Barris, Collingswood, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1894; died June 22, aged 76, of carcinoma of the prostate.

Robert C. Bills, Lockhart, Texas; Gate City Medical College, Texarkana, Ark., 1908; died April 25, aged 80, of cerebral hemorrhage.

Flavius Hugh Brown, Summersville, W. Va.; College of Physicians and Surgeons, Baltimore, 1911; member of the American Medical Association; past president of the Central West Virginia Medical Society; died June 8, aged 66, of cerebral hemorrhage.

Clyde Baker Callen ✠ Fayetteville, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; died in the City Hospital June 8, aged 61, of metastatic cancer and arthritis.

Fredrick George Grover Carl, Buffalo; University of Buffalo School of Medicine, 1923; member of the American Medical Association; on the courtesy staff of the Millard Fillmore Hospital; died May 7, aged 53, of carcinoma of the rectum.

Maurice David Chernoff ✠ Chicago; Chicago Medical School, 1927; on the staffs of the Mount Sinai Hospital and the Garfield Park Hospital, where he died July 13, aged 43, of cerebral hemorrhage.

George Colville Croston, Sapulpa, Okla.; Northwestern University Medical School, Chicago, 1905; member of the American Medical Association; served as president of the Creek County Medical Society; physician for the draft board during World Wars I and II; on the staff of the Sapulpa City Hospital; died in a hospital at Vinita May 30, aged 67, of heart disease.

David Telle Dickey, Seattle; St. Louis College of Physicians and Surgeons, 1895; died May 21, aged 74, of cerebral hemorrhage.

Shirley Edward Dunlap, Wiggins, Miss.; University of Nashville (Tenn.) Medical Department, 1906; member of the American Medical Association; past president of the Coast Counties Medical Society; served as mayor of Wiggins; local surgeon for the Illinois Central Railroad; secretary of the Appeal Board number 6, Selective Service System, Hattiesburg; president of the Bank of Wiggins; past president of the Wiggins Rotary Club; died in the Touro Infirmary, New Orleans, June 10, aged 65, of coronary thrombosis.

Walter John Eilerts ✠ Wichita, Kan.; National University of Arts and Sciences Medical Department, St. Louis, 1915; served on the state board of health; on the staffs of the Wichita Hospital, St. Joseph Hospital and the Wesley Hospital, where he died July 9, aged 64, of coronary occlusion.

Erastus Talbot Farrens, Clarinda, Iowa; Missouri Medical College, St. Louis, 1881; died June 2, aged 89, of senility.

Clarence Gardinier, Schenectady, N. Y.; Albany Medical College, 1914; member of the American Medical Association; formerly medical examiner and surgical supervisor for the General Electric Company; served during World War I; died in the Ellis Hospital May 23, aged 55, of intestinal hemorrhage and hypertension.

Thomas Leslie Giles, Toshes, Va.; Hospital College of Medicine, Louisville, Ky., 1905; died in the Memorial Hospital, Lynchburg, May 5, aged 66, of myocarditis.

Lorin Arthur Greene ✠ Lieutenant Colonel, U. S. Army, retired, Gainesville, Fla.; Memphis (Tenn.) Hospital Medical College, 1902; served during World War I; entered the medical corps of the U. S. Army as a major in July 1920; retired June 30, 1939; died January 8, aged 65, of coronary thrombosis.

Edward Theodorick Haskins, Newbern, Tenn.; Vanderbilt University School of Medicine, Nashville, 1895; member of the American Medical Association; died June 16, aged 71, of myocardial failure.

John Madison Hench ✠ Stockton, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; served during World War I; died May 7, aged 71, of coronary occlusion and diabetes mellitus.

Thomas William White Little, Cedar Rapids, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1900; died in the Mercy Hospital May 3, aged 80, of cerebral hemorrhage.

Victor Donaldson Long, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1928; died in the Friends Hospital, Philadelphia, May 19, aged 41, of toxic psychosis.

Francis Gerald McCarty, Niagara Falls, N. Y.; Loyola University School of Medicine, Chicago, 1930; served as a first lieutenant in the medical corps, Army of the United States, from March 1941 to November 1941, when he was discharged because of physical disability; member of the staffs of the Mount St. Mary's Hospital and the Niagara Falls Memorial Hospital; on the courtesy staff of the Sisters of Charity Hospital in Buffalo; died May 8, aged 42, of coronary sclerosis.

Nettie Andre Belau Moss, Detroit; Ohio Medical University, Columbus, 1896; died May 25, aged 71, of cerebral hemorrhage.

James Fowler Pressly ✠ San Francisco; Medical Department of the University of California, 1902; died May 25, aged 70, of myocardial insufficiency.

Samuel Watt Riggs, Pleasant Hill, Ala.; College of Physicians and Surgeons, Baltimore, 1893; member of the American Medical Association; died in the Selma Baptist Hospital, Selma, May 31, aged 74, of coronary thrombosis.

Harry Arthur Seigall, Hartford, Conn.; University of Vermont College of Medicine, Burlington, 1914; awarded the Purple Heart and the Silver Star for service during World War I; interned at St. Francis Hospital, where he remained a member of the staff; formerly chief of staff, Mount Sinai Hospital; died in the Mayo Clinic, Rochester, Minn., June 29, aged 54, of hereditary hemorrhagic telangiectasis.

Daniel Boteler Sprecher, Hollidaysburg, Pa.; College of Physicians and Surgeons, Baltimore, 1881; member of the American Medical Association and the Medical and Chirurgical Faculty of Maryland; for many years surgeon for the Baltimore and Ohio Railroad Company; died in Altoona, June 17, aged 90, of uremia.

LIEUT. STAFFORD M. WHEELER (MC.), U.S.N.R., 1910-1945

Joseph Clinton Starbuck ✠ Media, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; at one time represented Delaware County on the state board of health; served as staff physician for the Glen Mills (Pa.) Boys School and the Philadelphia Orphanage; died June 31, aged 79, of chronic myocarditis.

Grady Erastus Stone, King, N. C.; North Carolina Medical College, Charlotte, 1915; member of the American Medical Association; died June 21, aged 53, of coronary occlusion.

Martin Joseph Sweeney, Redlands, Calif.; Bellevue Hospital Medical College, New York, 1893; served on the staff of the Kane Summit Hospital and the board of education in Kane, Pa.; died June 8, aged 77, of coronary occlusion.

J. G. Taylor, Farmerville, La.; Louisville (Ky.) Medical College, 1894; coroner of Union Parish; died May 16, aged 77.

Willis Carver Templer ✠ Corning, N. Y.; University of Buffalo School of Medicine, 1920; served as president of the New York State Society of Industrial Medicine; medical director of the Corning Glass Works; surgeon at the Corning Hospital; consultant in industrial hygiene at the Strong Memorial Hospital in Rochester; died in the Clifton Springs Sanitarium and Clinic, Clifton Springs, May 12, aged 48, of cirrhosis of the liver and rheumatic heart disease.

Clarence Edgar Thompson ✠ Saco, Maine; Medical School of Maine, Portland, 1901; served on the staffs of the Eastern Maine General Hospital in Bangor and the Webber Hospital in Biddeford; died June 2, aged 69, of coronary disease.

Charles Whelan ✠ Boston; Tufts College Medical School, Boston, 1905; specialist certified by the American Board of Radiology, Inc.; member of the New England Roentgen Ray Society, Radiological Society of North America, Inc., and the American College of Radiology; served during World War I; for several years chief radiologist at the Quincy City Hospital, Quincy; consultant in roentgenology at the Carney Hospital and New England Hospital for Women and Children; died May 29, aged 68, of leukemia.

Bohumil Joseph Wiesner, St. Louis; American Medical College, St. Louis, 1902; formerly professor of anatomy at his alma mater; died May 31, aged 72.

Harry Dunlap Wiley ✠ Glencoe, Ill.; Rush Medical College, Chicago, 1899; served as a major in the medical corps of the U. S. Army during World War I; on the staff of the Highland Park Hospital, Highland Park, where he died August 20, aged 74, of peritonitis from acute appendicitis and pernicious anemia.

KILLED IN ACTION

Stafford Manchester Wheeler, Boston; Harvard Medical School, Boston, 1937; interned in contagious diseases at Sydenham Hospital and at the Harriet Lane Home, Johns Hopkins Hospital, both in Baltimore; later became epidemiologist-in-training with the division of communicable diseases, New York State Department of Health, in order to acquire further training and experience in epidemiology and contagious diseases; served as assistant and instructor in preventive medicine and epidemiology at his alma mater and the Harvard School of Public Health; research assistant at the House of the Good Samaritan; fellow of the epidemiological section of the American Public Health Association and a member of the American Epidemiological Society, as well as of several other medical and scientific associations; early in 1941 joined the Harvard group which went to Halifax, Canada, to assist the Canadian health authorities in an investigation of an extensive epidemic of diphtheria, scarlet fever and meningococcic meningitis; in the spring of 1942 accepted an appointment as associate professor of epidemiology at the Columbia University College of Physicians and Surgeons and the DeLamar School of Public Health; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve in June 1942; assigned as an instructor in epidemiology at the Naval Medical School, National Naval Medical Center, Bethesda, Md., where he investigated contagious diseases in various naval installations and served a tour of submarine duty in the North Atlantic in connection with his work; stationed at Bethesda until December 1944, when he was appointed to the American Typhus Commission and assigned overseas, where he worked with a Partisan army unit in Bosnia and Herzegovina; entered Sarajevo with the Partisan army on the day it was liberated from the Germans; awarded posthumously the United States of America Typhus Commission Medal on June 11, 1945 by the Vice Admiral of the U. S. Navy; promoted to lieutenant; killed near Sarajevo, Yugoslavia, April 13, aged 34, when a land mine exploded beneath his jeep.

Correspondence

MARIHUANA PROBLEMS

To the Editor:—An editorial (THE JOURNAL, April 28, p. 1129) and two communications to the Editor (June 2, p. 383, and July 21, p. 899), in discussing the book "Marihuana Problems" by the New York City Mayor's Committee on Marihuana, have referred to the article "The Marihuana Addict in the Army" by the undersigned and Capt. Henry J. Myers, which appeared in the December 1944 issue of *War Medicine*. In the editorial our article was said to be "a devastating refutation of the information contained in the La Guardia report." In their letters both Dr. Walton and Dr. Bowman objected to this characterization of the article and endorsed the findings of the Committee report.

Although I found the book "Marihuana Problems" to contain many valuable observations, I am critical of some conclusions and omissions. For example, on page 218 of the book it is stated that "those who have been smoking marihuana for a period of years showed no mental or physical deterioration which may be attributed to the drug." Even if this conclusion applies to the marihuana users included among the Committee's subjects—and this question will be discussed later—the criticism may still be raised that the Committee did not study confirmed marihuana addicts, for example of the type and degree analyzed in our article. The Committee's report would be analogous to a study of alcohol which omitted all reference to the chronic alcoholic addict.

In my opinion, some of the most significant observations in the entire investigation are contained on page 132 of the book, in the final paragraph of the chapter on "Emotional Reactions and General Personality Structure." I quote: "When the productions (in the personality tests) of the undrugged marihuana user are studied, certain personality traits which serve to differentiate him from the nonuser and from the 'average' individual can be discerned. As a group the marihuana users studied here were either inhibited emotionally or turned in on themselves, making little response to stimuli in the world about them. People with this type of personality generally have difficulty adjusting to others and are not at ease in social situations. This withdrawal from social contacts apparently finds little compensatory or sublimating activity elsewhere. These subjects did not have a desire or urge to occupy themselves creatively in a manner which might prove socially useful. They showed a tendency to drift along in passive fashion and gave a good portion of their attention to relatively unimportant matters. These men were poorly adjusted, lonely and insecure. As indicated by their history they seldom achieved good heterosexual adjustment." It is a serious omission that, in the summary chapter of the book, no mention is made of this aspect of the psychologic investigation.

Moreover, on page 218 appears the conclusion "Marihuana does not change the basic personality structure of the individual. It lessens inhibition and this brings out what is latent in his thoughts and emotions but it does not evoke responses which would otherwise be totally alien to him." It seems likely that the Committee, in its apparently dispassionate effort to counteract widely held but perhaps alarmist views of the extreme dangers of marihuana—that it causes otherwise normal individuals to commit violent crimes, to become oversexed and so on—has leaned too far backward and has minimized the long-term noxious effects of a substance which, according to the Committee's own observation, enhances, fosters and reinforces all the personality traits and tendencies mentioned on page 132 of the book.

Finally, it seems a pity that in such an elaborate study, which included psychologic, psychiatric and sociologic investigation, there is no attempt to determine the etiologic factors, either personal or social, leading to the use of marihuana. There is the statement on page 214, in the summary, "The marihuana users with whom contact was made in this study were persons without steady employment. The majority fall in the age group of 20 to 30 years. Idle and lacking initiative, they suffer boredom and seek distraction. Smoking is indulged in for the sake of conviviality and sociability and because it affords a temporary feeling of adequacy in meeting disturbing situations."

There is no apparent interest in the reasons for its widespread use in Harlem, why the users are "without steady employment, idle, lacking initiative" and so on.

In our study of 35 marihuana addicts in the Army, it was glaringly obvious that "their backgrounds were heavily loaded with adverse familial, social and economic factors," that "the personality pictures (of the marihuana addicts) show a typical pattern of response to repeated (actual) situations of frustration and deprivation," that "a completely adequate estimate of the effects of marihuana can be obtained only from viewing its use as part of an entire life pattern" and that "the problem is not the drug but the user of the drug" and, I might add, the social, economic, cultural milieu in which the drug user's development is fostered.

The obvious implication of the Committee's report, despite the fact that it is not explicitly stated, is that marihuana is essentially a harmless drug, used by inadequate persons as a means of obtaining a little fun out of life and is nothing to become alarmed about.

Such a conclusion might seem justified from the observations recorded. However, in spite of the appearance of scientific care and objectivity in the report, the final picture is of necessity a distortion because, in spite of the planning and the diverse approach, attention was focused on peripheral aspects but not primarily on the core of the problem, the user of the drug and the environmental forces affecting his development.

ELI MARCOVITZ, CAPTAIN, M. C., A. U. S.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Sept. 22, page 300.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, Nov. 12-14. Part III, New York City, Oct. 15-17; Boston, Oct. 16-17. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various centers, Jan. 18. Final date for filing application is Oct. 20. *Oral.* Various centers, Oct. 1946. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 24.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 27. Final date for filing application is Feb. 1. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Various centers, Feb. 2. Final date for filing application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Jan. 18-22 and Los Angeles, Jan. 28-Feb. 1. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 3-6 (canceled). Spring 1946. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Oct. 19. *Oral.* Atlantic City, Dec. 7-8. Sec., Dr. C. A. Aldrich, 115½ First Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY. *Written.* Part I. Spring 1946. Final date for filing application is Dec. 1. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written.* Various centers, Dec. 9. *Oral.* Chicago, February 1946. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

APPROVED RESIDENCIES AND FELLOWSHIPS FOR VETERAN AND CIVILIAN PHYSICIANS

Hospitals, 736; Assistant Residencies, Residencies and Fellowships, 7,666

The following educational services investigated and approved by the Council on Medical Education and Hospitals are considered in position to furnish acceptable residency training in accordance with standards adopted by the American Medical Association. In practically all fields these training programs have been reviewed in collaboration with the respective specialty boards. Included in the present list is the expanded number of residencies now available in those approved hospitals which have completed their plans to provide further opportunities for returning medical officers. Many additional residencies recently organized or in process of development may soon be added to the approved list. All arrangements for appointments should be made directly with the hospital concerned in the usual manner.

Discharged medical officers appointed by hospitals need not be counted in the regular residency quota allotted to individual hospitals by the Procurement and Assignment Service.

The star (*) indicates hospitals that are also approved for the training of interns. All hospitals on the approved intern list are likewise accredited for mixed residencies which represent general house staff assignments following the internship.

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1. ANESTHESIOLOGY

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Total Anesthetics	Inhalation Anesthetics	Autopsy Percentage	Asst. Res. and Residencies [8]	Beginning of Service (1946)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital *[4]	Los Angeles	W. W. Hutchinson	45,434	7,471	1,692	38	2	Varies	9-12	$157.20
White Memorial Hospital *	Los Angeles	A. J. Martinson	10,155	5,712	1,567	43	2	7/1	9-12	116.00
Stanford University Hospitals *[4]	San Francisco	W. B. Neff	9,710	4,537	.....	36	2	7/1	9-18	50.00
University of California Hospital *[4]	San Francisco	H. R. Hathaway	7,761	.....	.....	79	1	Varies	9	50.00
Hartford Hospital *[4]	Hartford, Conn.	C. B. Hickcox	21,513	18,185	9,151	34	14	1/1, 7/1	9-18	50.00
University Hospital *	Augusta, Ga.	P. P. Volpitto	10,453	4,536	3,432	..	3	.....	9	.....
Michael Reese Hospital *[4]	Chicago	J. Hichman	14,944	5,689	4,251	56	5	.....	9-36	50.00
Research and Educational Hospitals *[4]	Chicago	W. H. Cassels	4,757	2,421	1,626	93	4	7/1	9-36	55.00
St. Luke's Hospital *	Chicago	W. A. Conroy	14,158	8,938	4,672	67	5	7/1	9-36	25.00
University of Chicago Clinics *[4]	Chicago	H. Livingstone Adams	11,328	7,798	5,947	73	1	.....*	9-24	25.00
Wesley Memorial Hospital *[4]	Chicago	M. Karp	11,997	7,034	4,527	56	3	.....	9-24	.....
Evanston Hospital *	Evanston, Ill.	J. H. Bennett	7,828	4,329	2,117	82	1	Varies	9+	50.00
Indianapolis City Hospital *	Indianapolis	L. B. Mueller	9,572	5,937	1,988	28	2	4/1	9-36	100.00
Methodist Hospital *	Indianapolis	J. M. Whitehead	20,085	17,721	11,299	29	4	1/1	9-18	100.00
University Hospitals *[4]	Iowa City, Ia.	S. C. Cullen	16,977	8,377	4,928	42	9	7/1	9	25.00
University of Kansas Hospitals *[4]	Kansas City, Kan.	P. Lorhan	7,606	.....	.....	49	2	.....	9	.....
Louisville General Hospital *	Louisville, Ky.	D. Dollar	9,971	2,537	668	24	2	7/1	9	54.00
Charity Hospital of Louisiana *	New Orleans	J. Adriani	37,712	13,452	8,459	36	3	.....	9-36	60.00
Lahey Clinic	Boston	U. H. Eversole	.....	10,000[b]	.....	..	9	.....	9	.....
Massachusetts General Hospital *[4]	Boston	H. K. Beecher and Julia Arrowood	15,617	10,368[b]	5,810[b]	60	7	.....	9	.....
Massachusetts Memorial Hospitals *[4]	Boston	E. B. Ferguson	8,248	5,230	3,197	72	2	7/1	9	.....
New England Hospital for Women and Children *[4]	Boston	E. Bartlett	4,033	.....	.....	49	3	.....	9	.....
Providence Hospital *	Detroit	N. M. Bittrick	13,129	7,387	4,386	67	2	7/1	9-24	140.00[c]
University Hospitals *	Minneapolis	R. T. Knight	8,721	4,158	2,017	80	3	.....	9-36	.....
Mayo Foundation	Rochester, Minn.	J. S. Lundy	(See page 405)				10	.....	9	.....
West Jersey Homeopathic Hospital *	Camden, N. J.	K. S. Russell	5,266	2,686	1,421	20	2	.....	9	.....
Jersey City Hospital *	Jersey City, N. J.	W. Gleeson	20,191	6,400	2,250	17	6	.....	9-24	35.00
Albany Hospital *[4]	Albany, N. Y.	B. Etsten	12,805	6,379	4,630	54	4	7/1	9-12	25.00
Jewish Hospital *[4]	Brooklyn	I. M. Pallin	13,446	2,520	2,609	30	4	1/1, 7/1	9-36	75.00
Buffalo General Hospital *[4]	Buffalo	C. J. Durshardwe	10,576	6,822	3,890	42	2	.....	9	.....
Bellevue Hospital, Div. III—N. Y. Univ. *[4]	New York City	E. A. Rovenstine	57,864	19,159	9,345	28	11	Varies	9-36	50.00
Flower and Fifth Avenue Hospitals *	New York City	D. E. Brace	9,428	6,023[b]	4,374[b]	29	2	.....	9-12	100.00
French Hospital *[4]	New York City	S. H. Lesinger	5,806	2,589	1,652	13	1	.....	9	.....
Hospital for Joint Diseases *[4]	New York City	B. Rapoport	5,311	3,616	2,175	27	1	Varies	9-36	40.00
Metropolitan Hospital *[4]	New York City	F. E. Fierro	8,838	2,135	1,009	22	3	.....	9	.....
Mount Sinai Hospital *[4]	New York City	B. H. Eliasberg	14,534	7,012	5,334	41	4	.....	9-24	.....
New York Polyclinic Medical School and Hospital *	New York City	B. C. Sword	8,714	5,305	3,180	15	4	7/1	9	100.00
New York Post-Graduate Medical School and Hospital *[4]	New York City	M. C. Peterson	8,423	4,663	3,426	41	9	1/1, 6/1, 9/1	9-24	50.00
Presbyterian Hospital *[4]	New York City	V. Apgar	25,985	14,927	11,162	53	5	.....	9	50.00
St. Luke's Hospital *	New York City	G. E. Burford	8,165	4,889	2,621	39	6	Varies	9-36	125.00
St. Vincent's Hospital *[4]	New York City	G. H. Van Gilluwe	11,741	3,307	2,521	48	2	7/1	9-18	25.00
Grasslands Hospital *[4]	Valhalla, N. Y.	H. F. Bishop and W. Grillo	4,465	1,016	480	52	1	.....	9	.....
Cincinnati General Hospital *	Cincinnati		13,090	3,341	1,697	38	1	.....	9	.....
Huron Road Hospital *[4]	East Cleveland, Ohio	R. J. Whitacre	9,968	8,726	5,277	42	2	.....	9	90.00
University Hospitals *[4]	Oklahoma City, Okla.	H. E. Doudna	5,574	2,615	1,822	40	3	.....	9-24	.....
University of Oregon Medical School Hospitals and Clinics *[4]	Portland, Ore.	J. H. Hutton	5,770	7,745	1,551	55	3	7/1	9-18	75.00
Hahnemann Hospital *[4]	Philadelphia	H. S. Ruth	10,548	8,273	5,193	45	2	7/1	9-18	50.00
Hosp. of the University of Pennsylvania *[4]	Philadelphia	R. D. Dripps	14,268	10,663	4,490	75	2	.....	9-24	.....
Presbyterian Hospital *	Philadelphia	F. Haugen	6,361	.....	.....	71	1	7/1	9	50.00
Temple University Hospital *[4]	Philadelphia	P. D. Woodbridge	10,932	7,679[b]	4,652[b]	43	3	7/1	9-36	85.00
Rhode Island Hospital *	Providence, R. I.	M. Saklad	10,911	6,082	2,721	48	1	7/1	9	50.00
John Sealy Hospital *	Galveston, Texas	H. Slocum	7,274	3,512	2,837	50	3	Varies	9-36	50.00
State of Wisconsin General Hospital *[4]	Madison, Wis.	R. A. Waters	12,682	4,378	3,369	65	8	1/1, 7/1	9-36	25.00
Columbia Hospital *[4]	Milwaukee, Wis.	H. A. Cunningham	4,328	2,199	1,726	48	1	7/1	9-18	50.00

Hospitals, 54; Assistant Residencies and Residencies, 198

Numerical and other references will be found on page 405.

2. CARDIOLOGY

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [6]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Indiana University Medical Center [*4]	Indianapolis	G. Bond	.....	245	.....	..	1	.....	9-36	$83.00
House of the Good Samaritan [4]	Boston	T. D. Jones	166	.....	9	4	1	10/1	9-12	50.00
Massachusetts General Hospital [*]	Boston	P. D. White	500[b]	2,000[b]	.....	..	1	.....	9	.....
Henry Ford Hospital [*4]	Detroit	F. J. Smith	1,030	10,328	110	38	4	7/1	9-36	175.00
Pennsylvania Hospital [*]	Philadelphia	W. D. Stroud	.....	3,619	5	..	1	.....	9-36	35.00
St. Francis Hospital [*]	Pittsburgh	A. P. D'Zmura	453	44	25	3	1	.....	9	.....
Rhode Island Hospital [*]	Providence, R. I.	F. T. Fulton	2,313	489	.....	..	1	7/1	9	50.00

Hospitals, 7; Assistant Residencies and Residencies, 10

3. COMMUNICABLE DISEASES

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Deaths	Autopsies	Asst. Res. and Residencies [6]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital [*4]	Los Angeles	P. Hamilton	3,977	253	146	3	.....	9	.....
Children's Hospital [*4]	San Francisco	E. B. Shaw	530[b]	32[b]	17[b]	2	.....	9	.....
Municipal Hospitals [*4]	Hartford, Conn.	C. L. Thenebe	625	29	3	1	.....	9	$130.00
Cook County Hospital [*4]	Chicago	A. L. Hoyne	1,669	104	74	1	1/1, 7/1	9	25.00
Municipal Contagious Disease Hospital [4]	Chicago	A. L. Hoyne	1,652	100	57	12	.....	9	126.50
Sydenham Hospital [4]	Baltimore	M. H. Smith	1,159	59	43	3	7/1	9	40.00
Boston City Hospital [*4]	Boston	E. H. Place	3,246	18	4	2	7/1	9	50.00
Massachusetts Memorial Hospitals [*4]	Boston	C. Wesselhoeft	1,509	45	34	2	7/1	9	.....
Belmont Hospital [4]	Worcester, Mass.	R. D. Cox	823[b]	3	1	2	.....	9	133.00
Herman Kiefer Hospital [4]	Detroit	F. H. Top	2,294	157	77	8	7/1	9	200.00
Kansas City General Hospital [*]	Kansas City, Mo.	P. F. Stookey	602	63	50	1	.....	9-24	50.00
St. Louis City Hospital [*4]	St. Louis	R. W. Maxwell	.....	...	..	2	7/1	Varies	80.00
Essex County Hosp. for Contagious Dis.[4]	Belleville, N. J.	E. L. Smith	2,495	54	21	7	1/1, 7/1	9	125.00
Kingston Avenue Hospital [4]	Brooklyn	H. L. Barnes	4,205	84	25	6	7/1	9	100.00
Queens General Hospital [*4]	Jamaica, N. Y.	H. A. Reisman	597	17	8	3	7/1	9-24	110.00
Willard Parker Hospital [4]	New York City	B. W. Hamilton	4,787	66	26	9	7/1	9	110.00
City Hospital [*]	Cleveland	J. A. Toomey	2,393	139	62	4	7/1	9	25.00
Philadelphia Hosp. for Contagious Dis.[4]	Philadelphia	A. C. LaBoccetta	3,052	56	30	4	.....	9	145.00

Hospitals, 18; Assistant Residencies and Residencies, 72

4. DERMATOLOGY AND SYPHILOLOGY

The following services are approved by the Council and the American Board of Dermatology and Syphilology (See footnotes 1, 2 and 3)

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [6]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital [*2,4]	Los Angeles	I. R. Bancroft	1,111	14,887	25	9	2	Varies	9-36	$157.20
Stanford University Hospitals [*1,4]	San Francisco	O. E. Schmidt	35	16,805	..	..	2	7/1	9-18	50.00
University of California Hospital [*3,4]	San Francisco	H. E. Miller	6	10,691	..	..	2	Varies	9	50.00
Georgetown University Hospital [*3]	Washington, D. C.	F. Eichenlaub	35	7,963	..	..	2	7/1	9-24	75.00
Research and Educational Hospitals [*3]	Chicago	F. E. Senear	44	9,498	2	1	1	.....	9-36	55.00
University of Chicago Clinics [*3]	Chicago	S. Rothman	113	6,805	2	2	4	Every 9 mos	9-36	25.00
University Hospitals [*3,4]	Iowa City, Ia.	R. Nomland	314	2,290	9	3	4	7/1	9	25.00
Charity Hospital of Louisiana [*2,4]	New Orleans	M. T. Van Studdiford	253	42,562	8	3	10	.. ....	9-36	60.00
Boston City Hospital [*1,4]	Boston	J. G. Downing	103	26,039	1	..	2	7/1	9	50.00
Massachusetts General Hospital [*3]	Boston	C. Guy Lane	246[b]	16,021[b]	..	..	3	.... ..	9-36	.....
University Hospital [*3]	Ann Arbor, Mich.	A. C. Curtis	925	8,383	8	7	8	.....	9-36	108.85
City of Detroit Receiving Hospital [*3,4]	Detroit	L. Shaffer	89	4,770[b]	..	..	2	7/1	9-18	145.58
Minneapolis General Hospital [*3,4]	Minneapolis	S. E. Sweitzer	353	8,105	9	2	2	7/1	9-18	91.50
University Hospitals [*3]	Minneapolis	H. Michaelson	128	6,610	2	2	2	.....	9-36	.....
Mayo Foundation [3]	Rochester, Minn.	P. A. O'Leary	(See page 405)		..	..	10	.....	9	.....
Barnard Free Skin and Cancer Hospital [3,4]	St. Louis	M. F. Engman	38	7,275	..	..	1	.....	9-36	.....
Kings County Hospital [*1]	Brooklyn	E. A. Gauvain	632	15,602	24	6	1	.....	9	.....
Buffalo General Hospital [*2,4]	Buffalo	E. D. Osborne	90	3,889	2	1	1	7/1	9-12	25.00
Edward J. Meyer Memorial Hospital [*3,4]	Buffalo	E. D. Osborne	292	14,216	5	1	3	7/1	9-36	50.00
Bellevue Hospital, Div. III—N. Y. Univ. [*3,4]	New York City	F. C. Coombs	1,447	32,606	..	..	4	Varies	9+	25.00
Columbia-Presbyterian Medical Center [*3,4]	New York City	J. G. Hopkins	...	42,848[b]	..	..	4	.....	9-36	. ..
Montefiore Hosp. for Chronic Diseases [*1,4]	New York City	F. Wise	21	.....	1	..	1	7/1	9	50.00
New York City Hospital [*1]	New York City	J. J. Eller	809	9,952	9	2	1	7/1	9	110.00
New York Hospital [*3,4]	New York City	D. Barr and W. McDermott	...	23,879	..	..	2	.....	9-36	.....
New York Post-Graduate Medical School and Hospital [*3]	New York City	G. M. MacKee	266	102,358	3	1	12	10/1	9-24	.....
Duke Hospital [*3,4]	Durham, N. C.	J. L. Calloway	197	7,880	..	..	3	.....	9+	83.33
Cincinnati General Hospital [*3]	Cincinnati	H. L. Claassen	316	2,573	6	4	4	7/1	9-24	.....
City Hospital [*3]	Cleveland	H. N. Cole	681	13,954	4	2	4	.....	9+	60.00
University Hospitals [*3,4]	Cleveland	H. N. Cole	291[b]	17,087[b]	..	..	2	.....	9+	.....
University of Oregon Medical School Hospitals and Clinics [*2,4]	Portland, Ore.	L. B. Kingery	34	4,746	..	..	5	.....	9-18	.....
Graduate Hosp. of the Univ. of Penna. [*3]	Philadelphia	F. Weidman	106	9,984	2	1	2	.....	9+	...
Hospital of the Univ. of Pennsylvania. [*3,4]	Philadelphia	J. H. Stokes	253	23,425	..	..	6	7/1	9-60	.....
Jefferson Medical College Hospital [*3]	Philadelphia	F. C. Knowles	25[b]	5,285[b]	..	..	1	.....	9+	.....
Skin and Cancer Hospital [3]	Philadelphia	A. Strickler	172	50,639	10	..	2	7/1	9-24	30.00
University of Virginia Hospital [*3,4]	Charlotterville, Va.	D. C. Smith	256	9,167	3	3	7	7/1	9	25.00

Hospitals, 35; Assistant Residencies and Residencies, 122

Numerical and other references will be found on page 405.

5. FRACTURES

The following services are approved by the Council and the American Board of Orthopaedic Surgery

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Denver General Hospital ★	Denver	H. W. Wilcox	1,676	2,516	85	53	2	3/1	9	$50.00
Cook County Hospital ★[4]	Chicago	W. R. Cubbins	2,804	2,283	205	40	5	1/1, 7/1	9-36	25.00
City of Detroit Receiving Hospital ★[4]	Detroit	A. D. LaFerte	1,074	10,995	34	5	2	7/1	9-18	145.58
Presbyterian Hospital ★[4]	New York City	W. Darrach	450	11,092	2	..	4	.....	9	50.00
Rhode Island Hospital ★	Providence, R. I.	H. E. Harris	640	4,398	36	4	2	7/1	9	50.00

Hospitals, 5; Assistant Residencies and Residencies, 15

6. MALIGNANT DISEASES

Albert Steiner Clinic for Cancer and Allied Diseases [4]	Atlanta, Ga.	R. H. Fike	551	39,490	43	43	2	10/1	9-24	$100.00
Michael Reese Hospital ★[4]	Chicago	E. Uhlmann	1,406	826	..	..	1	.....	9-36	25.00
Massachusetts General Hospital ★	Boston		(Included in Surgery)				1	.....	9	.....
New England Deaconess Hospital	Boston	L. S. McKittrick	853[b]	205[b]	..	..	2	.....	9	.....
Pondville Hospital	Walpole, Mass.	G. L. Parker	815	6,546	33	29	5	Varies	9-15	177.00
Westfield State Sanatorium [4]	Westfield, Mass.	F. S. Hopkins	385	6,760	12	10	3	.....	9-12	162.96
Eloise Hospital and Infirmary ★[4]	Eloise, Mich.	R. V. Walker	422	332	126	37	1	7/1	9	160.00
Barnard Free Skin and Cancer Hospital	St. Louis		590	7,640	9	3	2	.....	9	.....
Jersey City Hospital ★[4]	Jersey City, N. J.	J. B. Faison	538[b]	2,622[b]	..	..	2	.....	9	.....
Brooklyn Cancer Institute [4]	Brooklyn	A. B. Friedman	893	6,169	225	41	6	1/1	9	100.00
State Institute for the Study of Malignant Diseases [4]	Buffalo	B. F. Schreiner	1,826	26,410	58	58	4	.....	9-24	150.00
Meadowbrook Hospital ★	Hempstead, N. Y.	A. C. Martin	370	3,039	116	35	1	7/1	9	110.00
Memorial Hospital ★[4]	New York City	C. P. Rhoads	5,130	76,807	223	95	28	.....	9-36	.....
New York City Cancer Institute Hospital [4]	New York City	J. Wolf	938	4,782	562	60	6	1/1, 7/1	9	100.00
Duke Hospital ★[4]	Durham, N. C.		(Included in Surgery)				2	.....	9	.....
American Oncologic Hospital [4]	Philadelphia	G. M. Dorrance	512	5,951	3	18	3	5/1, 10/1	9-36	100.00
Jeanes Hospital [4]	Philadelphia	H. Wammock	567	7,251	69	44	4	7/1	9-36	100.00

Hospitals, 17; Assistant Residencies and Residencies, 73

7. MEDICINE

Army Air Forces Hospitals

The following hospitals of the Army Air Forces have been approved by the Council as offering acceptable residencies in Medicine for a period not to exceed one year. Residency assignments are available to medical officers for periods of six to twelve months.

Regional Hospital	Maxwell Field, Montgomery, Ala.	Regional Hospital	Barksdale Field, Shreveport, La.
Regional Hospital	Davis-Monthan Field, Tucson, Ariz.	Regional Hospital	Westover Field, Chicopee Falls, Mass.
Regional Hospital	Hammer Field, Fresno, Calif.	Regional Hospital	Keesler Field, Biloxi, Miss.
Regional Hospital	Hamilton Field, San Rafael, Calif.	Regional Hospital	Army Air Field, Lincoln, Neb.
Regional and Convalescent Hospital	Army Air Base, Santa Ana, Calif.	Regional Hospital	Mitchel Field, Hempstead, N. Y.
Regional Hospital	Buckley Field, Denver, Colo.	Regional Hospital	Patterson Field, Fairfield, O.
Regional and Convalescent Hospital	Miami District, Miami Beach, Fla.	Regional Hospital	Army Air Field, Sioux Falls, S. D.
Regional Hospital	Army Air Base, Orlando, Fla.	Regional Hospital	Army Air Field, Amarillo, Tex.
Regional Hospital	Drew Field, Tampa, Fla.	Regional Hospital	Army Air Field, Pyote, Tex.
Regional Hospital	Hunter Field, Savannah, Ga.	Regional Hospital	Aviation Cadet Center, San Antonio, Tex.
Regional Hospital	Scott Field, Belleville, Ill.	Regional Hospital	Sheppard Field, Wichita Falls, Tex.
Regional Hospital	Chanute Field, Rantoul, Ill.	Regional Hospital	Kearns ORD, Kearns, Utah
		Regional Hospital	Langley Field, Hampton, Va.
		Regional Hospital	Truax Field, Madison, Wis.

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Jefferson and Hillman Hospitals ★	Birmingham, Ala.	J. S. McLester	3,158	8,543	467	127	4	Every 9 mos	9	$50.00
Norwood Hospital ★[4]	Birmingham, Ala.	H. S. Ward and E. D. Lineberry	972	4,745	42	12	1	.....	9-24	150.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company ★	Fairfield, Ala.	W. W. Compton	1,872	18,863	158	39	2	1/1	9-12	200.00
Baptist State Hospital ★	Little Rock, Ark.	F. W. Harris	2,618	.....	205	41	2	1/1	9-12	125.00
General Hospital of Fresno County ★	Fresno, Calif.	W. E. R. Schottstaedt	1,484	4,983	284	43	2	7/1	9-12	135.00
Cedars of Lebanon Hospital ★[4]	Los Angeles	M. Nathanson	3,894	6,484	267	146	1	7/1	9	100.00
Los Angeles County Hospital ★[4]	Los Angeles	H. F. West	12,806	42,124	2,342	844	18	Varies	9-36	157.20
White Memorial Hospital ★	Los Angeles	D. D. Comstock	2,437	35,236	113	48	2	7/1	9-12	116.00
Highland-Alameda County Hospital ★[4]	Oakland, Calif.	R. T. Sutherland and H. G. MacLean	2,008	.....	441	83	3	7/1	9	80.00
Collis P. and Howard Huntington Memorial Hospital ★	Pasadena, Calif.	J. R. Sanford	1,969	11,536	205	..	1	10/1	9-12	150.00
San Diego County General Hospital ★	San Diego, Calif.	C. L. Stealy	3,988	7,979	523	103	2	7/1	9-12	164.00
Children's Hospital ★[4]	San Francisco	D. Atkinson	309[b]	1,467[b]	...	..	1	.....	9	....
Franklin Hospital ★[4]	San Francisco	E. L. Bruck	1,262	.....	120	41	3	7/1	9-12	100.00
Mount Zion Hospital ★[4]	San Francisco	A. L. Cohn and J. J. Sampson	1,671	.....	147	61	3	7/1	9-18	75.00
St. Luke's Hospital ★[4]	San Francisco	H. P. Hill	2,120	.....	123	28	2	7/1	9-12	200.00
San Francisco Hospital ★[4]	San Francisco	L. H. Briggs	3,348	.....	877	170	7	Varies	9	115.00
Stanford University Hospitals ★[4]	San Francisco	A. L. Bloomfield	1,935	18,344	116	50	7	7/1	9-18	50.00
University of California Hospital ★[4]	San Francisco	W. J. Kerr	2,048	24,099	87	70	6	Varies	9-12	50.00
Santa Clara County Hospital ★	San Jose, Calif.	G. Gray	1,777[b]	2,819[b]	...	..	5	7/1	9-36	165.00
Fairmont Hospital of Alameda County [4]	San Leandro, Calif.		929[b]	.....	...	..	2	7/1	9	105.00
Colorado General Hospital ★	Denver		1,680	15,436	176	133	2	7/1	9-18	70.00

Numerical and other references will be found on page 405.

7. MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [a]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [c]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Denver General Hospital ★	Denver	M. Katzman	1,695	2,350	474	103	2	7/1	9-24	$50.00
Fitzsimons General Hospital	Denver									
Grace Hospital ★	New Haven, Conn.	S. J. Goldberg	1,006	612	118	12	4	.....	9	.....
New Haven Hospital ★[4]	New Haven, Conn.	F. G. Blake	2,724[b]	7,311[b]	295	..	7	7/1	9-12	.....
Central Dispensary and Emergency Hosp. ★[4]	Washington, D. C.	H. M. Kaufman	1,695	2,381	145	58	2	.....	9-12	.....
Freedmen's Hospital ★[4]	Washington, D. C.	J. B. Johnson	998	7,114	234	68	9	1/1	9-36	.....
Gallinger Municipal Hospital ★[4]	Washington, D. C.	W. M. Yater	2,302	1,220	416	228	10	.....	9	.....
Garfield Memorial Hospital ★[4]	Washington, D. C.	B. F. Weems	2,386	2,382	142	..	4	7/1	9-18	75.00
Georgetown University Hospital ★	Washington, D. C.	W. M. Yater	1,205	6,277	104	47	4	7/1	9-36	75.00
George Washington University Hospital ★[4]	Washington, D. C.	P. F. Dickens	460	1,583	50	30	3	9/1	9	100.00
Duval County Hospital ★	Jacksonville, Fla.	L. Limbaugh	450	.....	123	41	3	7/1	9	125.00
James M. Jackson Memorial Hospital ★	Miami, Fla.		7,108	.....	564	131	2	7/1	9	83.00
Grady Memorial Hospital ★	Atlanta, Ga.	H. C. Sauls	2,123	47,086	342	163	9	.....	9	20.00
St. Joseph Infirmary ★	Atlanta, Ga.	J. H. Hines	1,352	536	68	15	2	7/1	9-36	125.00
University Hospital ★[4]	Augusta, Ga.	V. P. Sydenstricker	2,423	3,898	261	38	6	10/1	9-18	35.00
Emory University Hospital ★	Emory University, Ga.	C. W. Strickler	.....	.....	92	40	1	7/1	9-12	50.00
Cook County Hospital ★[4]	Chicago	C. O. Maher	15,694[b]	18,119[b]	3,703[b]	537[b]	18	1/1, 7/1	9-36	25.00
Mercy Hospital-Loyola University Clinics ★	Chicago	F. C. Val Dez	2,029	21,781	157	66	1	10/1	9-36	75.00
Michael Reese Hospital ★[4]	Chicago	J. Meyer	3,045	16,949	312	139	5	Varies	9-36	25.00
Mount Sinai Hospital ★[4]	Chicago	N. I. Fox	1,890[b]	6,246[b]	...	..	1	.....	9	.....
Norwegian-American Hospital ★[4]	Chicago	A. E. Lehner	1,703	.....	173	38	1	1/1	9-24	150.00
Passavant Memorial Hospital ★[4]	Chicago	L. J. Pollock	1,981	1,591	67	45	6	.....	9+	.....
Presbyterian Hospital ★	Chicago	R. C. Brown	3,923	18,518	164	99	4	1/1, 7/1	9-36	50.00
Provident Hospital ★[4]	Chicago	A. F. Connor	690	16,767	79	25	1	1/1	9	50.00
Research and Educational Hospitals ★[4]	Chicago	R. W. Keeton	540	2,068	58	53	4	.....	9-36	55.00
St. Joseph's Hospital ★	Chicago	L. E. Hines	1,897	1,027	121	32	2	1/1, 10/1	9	125.00
St. Luke's Hospital ★[4]	Chicago	R. W. Keeton	3,263	9,507	180	108	6	7/1	9-36	25.00
University of Chicago Clinics ★[4]	Chicago	G. F. Dick	1,903	38,363	95	61	11	Every 9 mos	9-36	25.00
Wesley Memorial Hospital ★[4]	Chicago	P. S. Rhoads	2,829	.....	139	67	5	1/1	9-12	25.00
Evanston Hospital ★	Evanston, Ill.	L. D. Snorf	2,406	10,391	...	..	1	8/1	9+	100.00
St. Francis Hospital ★[4]	Evanston, Ill.		3,119	.....	254	50	1	Varies	9-12	75.00
St. Francis Hospital ★[4]	Peoria, Ill.	C. Fischer	2,774	8,050	311	74	2	7/1	9-24	150.00
Indianapolis City Hospital ★[4]	Indianapolis	H. F. Dunlap	2,120	18,292	457	119	6	4/1	9-36	30.00
Indiana University Medical Center ★[4]	Indianapolis	J. O. Ritchey	2,012	8,213	171	73	4	.....	9-36	33.00
University Hospitals ★[4]	Iowa City, Ia.	F. M. Smith	2,136	3,380	185	72	12	7/1	9	25.00
University of Kansas Hospitals ★[4]	Kansas City, Kan.	R. H. Major	1,347	11,485	94	50	5	.....	9-36	50.00
Louisville General Hospital ★	Louisville, Ky.	J. W. Moore	2,128	24,811	387	70	12	7/1	9	54.00
Charity Hospital of Louisiana ★[4]	New Orleans		5,293	56,502	781	211	33	Varies	9-48	60.00
Touro Infirmary ★	New Orleans	W. Wirth	1,745	4,490	162	60	2	.....	9	50.00
Baltimore City Hospitals ★[4]	Baltimore	C. H. Boyd	1,790	.....	431	161	10	4/1	9-12	40.00
Church Home and Infirmary ★[4]	Baltimore	Z. R. Morgan	626	671	59	29	2	7/1	9-12	35.00
Franklin Square Hospital ★[4]	Baltimore	W. H. Smith	581	652	50	12	2	10/1	9	100.00
Hospital for Women ★[4]	Baltimore	W. Fort	468	2,821	23	3	2	4/1	9-12	50.00
Johns Hopkins Hospital ★[4]	Baltimore	W. T. Longcope	4,811	65,394	312	212	10	7/1	9	.....
Maryland General Hospital ★	Baltimore	D. C. Streett	664	253	110	16	2	.....	9	.....
Mercy Hospital ★	Baltimore	H. R. Peters	.....	.....	149	28	4	7/1	9-12	50.00
Provident Hospital and Free Dispensary ★	Baltimore	E. B. Jarrett	444	214	...	..	2	1/1	9-12	50.00
St. Agnes' Hospital ★[4]	Baltimore	N. Nitsch	824	212	110	24	1	.....	9	.....
St. Joseph's Hospital ★	Baltimore	F. J. Geraghty	810	1,035	115	15	3	7/1	9-36	50.00
Sinai Hospital ★[4]	Baltimore		1,439	3,906	165	85	3	7/1	9-12	35.00
South Baltimore General Hospital ★	Baltimore	G. McLean	356	1,574	73	7	2	.....	9	.....
Union Memorial Hospital ★	Baltimore	W. C. Baetjer	1,740	3,834	174	28	5	7/1	9-36	50.00
University Hospital ★[4]	Baltimore	T. P. Sprunt	1,473	3,667	198	115	4	7/1	9	50.00
West Baltimore General Hospital ★[4]	Baltimore	D. Tenner	580	411	93	20	2	6/1	9	70.00
Beth Israel Hospital ★	Boston	H. Linenthal	1,977	7,013	179	83	2	7/1	9	79.16
Boston City Hospital ★[4]	Boston	G. R. Minot	12,153	35,552	2,015	414	21	7/1	9-12	50.00
Joseph H. Pratt Diagnostic Hospital ★	Boston	S. Proger	2,855	1,903	...	..	6	.....	9-18	83.33
Lahey Clinic	Boston		.....	.....	...	..	24	.....	9	.....
Massachusetts General Hospital ★[4]	Boston		1,756[b]	21,695[b]	...	..	14	.....	9	.....
Massachusetts Memorial Hosptials ★	Boston	C. S. Keefer	1,964	5,185	72	30	4	7/1	9	.....
Peter Bent Brigham Hospital ★	Boston	G. W. Thorn	2,280	32,000	210	120	9	Varies	9+	.....
Worcester City Hospital ★	Worcester, Mass.	G. W. Haigh	1,538	4,278	349	..	2	7/1	9	50.00
University Hospital ★[4]	Ann Arbor, Mich.	C. C. Sturgis	2,519	33,812	168	110	22	Every 9 mos	9	100.83
Alexander Blain Hospital	Detroit	R. L. Fisher	425	20,435	27	16	1	.....	9-48	200.00
City of Detroit Receiving Hospital ★[4]	Detroit	G. B. Myers	4,390	35,524	983	358	10	7/1	9-27	145.58
Grace Hospital ★	Detroit	L. T. Colvin	3,522	8,942	274	26	3	7/1	9-36	125.00
Harper Hospital ★[4]	Detroit	H. A. Freund	2,578	.....	240	87	7	.....	9+	.....
Henry Ford Hospital ★[4]	Detroit	F. J. Sladen	6,115	107,509	230	91	30	7/1	9-60	175.00
Providence Hospital ★	Detroit	L. J. Bailey	1,962	.....	301	166	1	.....	9-48	140.00
St. Mary's Hospital ★	Detroit	W. J. Wilson Sr.	2,043	1,936	175	88	3	Varies	9-24	150.00
Woman's Hospital ★[4]	Detroit	B. I. Johnstone	556[b]	.....	54	23	1	.....	9-18	100.00
Eloise Hospital and Infirmary ★[4]	Eloise, Mich.	M. R. McQuiggan	7,124	21,149	563	222	13	7/1	9-12	160.00
Hurley Hospital ★	Flint, Mich.		1,717	.....	215	62	1	7/1	9	125.00
Blodgett Memorial Hospital ★[4]	Grand Rapids, Mich.		647[b]	.....	...	..	1	.....	9	.....
Butterworth Hospital ★[4]	Grand Rapids, Mich.	A. J. Baker	2,048	.....	214	83	1	.....	9	150.00
St. Mary's Hospital ★	Duluth, Minn.	F. J. Hirschboeck	1,718	.....	118	70	1	7/1	9-12	125.00
Minneapolis General Hospital ★[4]	Minneapolis	G. Fahr	2,115	16,799	385	155	6	7/1	9-18	91.50
University Hospitals ★[4]	Minneapolis	C. J. Watson	1,150	22,350	116	86	6	7/1	9-36	91.50
Mayo Foundation	Rochester, Minn.	R. M. Wilder	(See page 405)				120	.....	9	.....
Ancker Hospital ★	St. Paul	A. Hoff	1,027	9,357	275	203	8	7/1	9	155.00
Charles T. Miller Hospital ★	St. Paul	C. N. Hensel and E. T. F. Richards	2,317	5,784	...	..	2	Every 9 mos	9	.....
St. Louis County Hospital ★[4]	Clayton, Mo.	H. S. Liggett	871	21,479	139	36	4	7/1	9-18	60.00
Kansas City General Hospital ★	Kansas City, Mo.	D. A. Williams	2,095	10,725	392	242	3	7/1	9-24	50.00
St. Joseph Hospital ★	Kansas City, Mo.	H. L. Jones	2,069	.....	...	..	1	Varies	9	75.00
St. Mary's Hospital ★[4]	Kansas City, Mo.	P. F. Stookey	1,226	.....	125	56	1	Varies	9-12	150.00
Barnes Hospital ★[4]	St. Louis	W. B. Wood	4,264	21,400	240	164	12	7/1	9-36	25.00
De Paul Hospital ★	St. Louis	E. P. Buddy	1,328	1,161	179	23	2	7/1	9	60.00
Homer G. Phillips Hospital ★[4]	St. Louis	H. Bulger	1,998	9,439	488	79	6	1/1	9	80.00
Jewish Hospital ★[4]	St. Louis	L. Sale	2,794	6,755	209	56	4	7/1	9	30.00
Missouri Baptist Hospital ★	St. Louis	S. B. Grant	1,880	.....	...	..	2	7/1	9	70.00
St. Anthony's Hospital ★	St. Louis	R. V. Powell	1,237	.....	99	29	1	7/1	9	50.00
St. John's Hospital ★	St. Louis	C. H. Neilson	2,226	4,909	192	41	2	6/1	9-24	40.00
St. Louis City Hospital ★[4]	St. Louis	D. L. Sexton	3,573	6,004	719	340	8	7/1	9	80.00

Numerical and other references will be found on page 405.

7. MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[a]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies[s]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
St. Luke's Hospital ★	St. Louis	A. B. Day	929	.....	...	..	1	7/1	9	$150.00
St. Mary's Group of Hospitals ★	St. Louis	R. A. Kinsella	3,565	45,103	245	101	9	7/1	9+	35.00
Creighton Memorial St. Joseph's Hospital ★[4]	Omaha	A. Sachs	2,903	4,899	166	59	1	7/1	9-24	100.00
Jersey City Hospital ★[4]	Jersey City, N. J.	T. J. White	5,105	20,684	631	65	7	Varies	9-12	35.00
Albany Hospital ★[4]	Albany, N. Y.	L. W. Gorham	1,892	3,823	163	79	4	7/1	9-12	25.00
Brooklyn Hospital ★[4]	Brooklyn	E. P. Maynard	1,735	11,940	169	58	2	.....	9	.....
Coney Island Hospital ★[4]	Brooklyn	T. J. Longo	1,573	23,186	353	70	2	7/1	9	60.00
Cumberland Hospital ★[4]	Brooklyn	J. J. Guttman	1,897	26,254	331	75	2	7/1	9-12	50.00
Greenpoint Hospital ★[4]	Brooklyn	A. Klein	1,278	10,104	248	31	1	7/1	9	110.00
Jewish Hospital ★[4]	Brooklyn		1,727	25,850	241	61	4	7/1	9-12	25.00
King County Hospital ★[4]	Brooklyn	J. Crawford and H. Feinblatt	10,903	18,704	2,776	315	8	7/1	9-18	60.00
Long Island College Hospital ★[4]	Brooklyn	W. Dock	1,550	10,415	138	57	3	7/1	9-27	25.00
Norwegian Lutheran Deaconesses' Home and Hospital ★[4]	Brooklyn		1,996	241	...	..	1	10/1	9	.....
Buffalo General Hospital ★[4]	Buffalo	C. Greene	2,321	12,457	285	103	8	.....	9	.....
Edward J. Meyer Memorial Hospital ★[4]	Buffalo	D. K. Miller	3,130	9,876	456	154	9	7/1	9-48	59.00[c]
Millard Fillmore Hospital ★	Buffalo	D. McKay	1,215	.....	134	38	1	7/1	9-12	50.00
Mary Imogene Bassett Hospital ★	Cooperstown, N. Y.	G. M. Mackenzie	.....	.....	...	..	1	10/1	9	.....
Meadowbrook Hospital ★[4]	Hempstead, N. Y.	E. C. Jessup	884	.....	144	51	1	7/1	9	110.00
Queens General Hospital ★[4]	Jamaica, N. Y.	A. W. Victor	2,824	19,845	653	304	2	7/1	9-24	110.00
Charles S. Wilson Memorial Hospital ★[4]	Johnson City, N. Y.	J. C. Zillhardt	1,894	.....	197	46	1	7/1	9-12	175.00
New Rochelle Hospital ★	New Rochelle, N. Y.	C. A. Read	1,757	1,315	210	71	1	7/1	9	100.00
Bellevue Hospital, Div. I—Columbia U.★[4]	New York City	D. W. Richards Jr.	2,649	20,548	266	93	1	Varies	9	100.00
Bellevue Hospital, Div. II—Cornell U.★[4]	New York City	A. Lincoln	2,922	35,315	234	107	1	Varies	9	100.00
Bellevue Hospital, Div. III—N. Y. Univ.★[4]	New York City	W. S. Tillett	3,328	13,755	386	115	2[g]	Varies	9	100.00
Bellevue Hospital, Div. IV—Open Div.★[4]	New York City	C. Nammack	2,489	15,530	190	85	1	Varies	9	100.00
Bronx Hospital ★	New York City	H. Wessler	1,563	16,107	178	45	2	7/1	9	75.00
Flower and Fifth Avenue Hospitals ★[4]	New York City	L. J. Boyd	1,186	7,022	126	31	2	.....	9-12	100.00
Fordham Hospital ★[4]	New York City	J. J. McGowan	3,458[b]	76,598[b]	...	..	2	7/1	9	60.00
Goldwater Memorial Hospital ★[4]	New York City	T. McGoldrick and J. W. Shannon	1,699	793	291	12	23	7/1	9-12	50.00
Gouverneur Hospital ★[4]	New York City	T. Sanders	1,280	43,344	285	23	3	.....	9	60.00
Harlem Hospital ★[4]	New York City	O. La Rotonda	5,147[b]	53,353[b]	...	...	6	1/1, 7/1	9	50.00
Lenox Hill Hospital ★[4]	New York City		1,412	9,044	142	58	1	7/1	9	25.00
Lincoln Hospital ★[4]	New York City	L. H. Shearer	2,902	33,943	691	135	4	7/1	9	60.00
Metropolitan Hospital ★[4]	New York City	L. J. Boyd	3,121	29,143	569	109	3	7/1	9-12	100.00
Montefiore Hospital for Chronic Diseases ★[4]	New York City		468	.....	107	52	4	1/1, 7/1	9-12	50.00
Morrisania City Hospital ★[4]	New York City	E. Flood	4,076	14,015	845	85	2	7/1	9	50.00
Mount Sinai Hospital ★[4]	New York City		.....	.....	...	..	5	1/1, 7/1	9-18	50.00
New York City Hospital ★	New York City	J. H. Carroll	2,602	22,323	435	146	4	7/1	9	60.00
New York Hospital ★[4]	New York City	D. P. Barr	1,976	33,861	135	88	20	7/1	9-60	25.00
New York Infirmary for Women and Children ★[4]	New York City	M. Manter	457	2,144	14	1	1	9/1	9-12	75.00
New York Polyclinic Medical School and Hospital ★[4]	New York City		1,115	5,937	73	18	2	7/1	9	25.00
New York Post-Graduate Medical School and Hospital ★[4]	New York City	W. G. Lough	1,659	36,322	84	25	5	7/1	9-24	30.00
Presbyterian Hospital ★[4]	New York City	W. W. Palmer	4,259	45,166	270	..	15	.....	9	41.67
St. Luke's Hospital ★	New York City	G. M. Goodwin and F. W. Bishop	2,829	37,612	239	96	2	Varies	9-36	50.00
St. Vincent's Hospital ★[4]	New York City	T. A. Martin	3,197	4,915	527	114	4	7/1	9-18	25.00
Genesee Hospital ★[4]	Rochester, N. Y.	D. B. Jewett	1,495	5,994	178	70	2	7/1	9-12	100.00
Rochester General Hospital ★[4]	Rochester, N. Y.	C. P. Thomas	1,462	4,623	189	127	3	7/1	9-36	75.00
St. Mary's Hospital ★[4]	Rochester, N. Y.	B. J. Duffy	2,770	1,185	185	47	1	7/1	9-12	125.00
Strong Memorial and Rochester Municipal Hospitals ★[4]	Rochester, N. Y.	W. S. McCann	4,136	16,114	406	297	13	7/1	9-48	41.66
Hospital of the Good Shepherd ★	Syracuse, N. Y.	E. C. Reifenstein	.....	.....	...	..	2	.....	9	.....
Grasslands Hospital ★[4]	Valhalla, N. Y.	M. D. Touart	1,120	9,309	272	148	2	7/1	9-12	75.00
Duke Hospital ★[4]	Durham, N. C.	F. M. Hanes	3,836	25,506	154	107	12	Every 9 mos	9	83.33
Watts Hospital ★	Durham, N. C.		2,261	776	103	19	1	7/1	9	75.00
City Hospital ★	Winston-Salem, N. C.	S. F. Pfohl	1,898	5,273	218	48	4	.....	9+	75.00
North Carolina Baptist Hospital ★[4]	Winston-Salem, N. C.	G. T. Harrell	1,577	5,718	80	35	4	7/1	9+	41.66
Trinity Hospital ★	Minot, N. D.		1,171[b]	.....	...	..	1	.....	9	.....
City Hospital ★	Akron, O.		2,387	.....	265	82	2	.....	9	100.00
Mercy Hospital ★	Canton, O.	J. D. O'Brien	1,931	.....	146	27	1	7/1	9	100.00
Christ Hospital ★	Cincinnati	D. A. Tucker	1,920	2,821	174	37	2	7/1	9-18	75.00
Cincinnati General Hospital ★[4]	Cincinnati	M. A. Blankenhorn	2,323	22,538	674	266	26	7/1	9-36	.....
Deaconess Hospital ★	Cincinnati	D. Osborn and H. H. Shook	2,624	.....	145	36	1	9/1	9	125.00
Good Samaritan Hospital ★	Cincinnati	G. Topmoeller	4,868	1,902	273	64	3	7/1	9-24	50.00
Jewish Hospital ★[4]	Cincinnati	R. Rothenberg	2,151	.....	196	51	2	10/1	9-27	137.50
City Hospital ★[4]	Cleveland	R. W. Scott	1,929	19,806	470	146	11	7/1	9+	25.00
Cleveland Clinic Foundation Hospital ★	Cleveland	R. L. Haden	1,582	.....	...	..	32	.....	9+	125.00
Mount Sinai Hospital ★[4]	Cleveland	S. Berger	1,502	7,451	152	44	2	7/1	9-12	75.00
St. Alexis Hospital ★	Cleveland	H. V. Paryzek	2,427	4,424	215	38	1	7/1	9	120.00
St. John's Hospital ★	Cleveland	W. Fornes	1,329	.....	101	15	1	7/1	9	100.00
St. Luke's Hospital ★	Cleveland	L. Taylor	2,692	13,566	208	86	3	7/1	9-36	50.00
St. Vincent Charity Hospital ★	Cleveland	C. S. Stone	1,877	6,079	193	62	1	.....	9	75.00
University Hospitals ★[4]	Cleveland	J. T. Wearn	3,424[b]	18,685[b]	...	..	17	7/1	9+	.....
St. Francis Hospital ★	Columbus, O.	L. H. Van Buskirk	815	522	151	35	1	.....	9	.....
Starling-Loving University Hospital ★[4]	Columbus, O.	C. A. Doan	1,242	10,685	119	48	7	7/1	9-12	50.00
White Cross Hospital ★	Columbus, O.	W. F. Millhon	1,071	.....	88	30	1	7/1	9-12	100.00
Miami Valley Hospital ★	Dayton, O.	H. D. Cassell	2,542	.....	233	67	2	7/1	9	75.00
Huron Road Hospital ★[4]	East Cleveland, O.		1,028	2,970	116	50	2	7/1	9-18	70.00
Maumee Valley Hospital ★	Toledo, O.	N. Morris	1,524	9,149	259	73	1	.....	9	.....
St. Vincent's Hospital ★[4]	Toledo, O.	C. W. Waggoner	3,187	2,017	206	25	2	.....	9	.....
St. Elizabeth's Hospital ★[4]	Youngstown, O.	R. B. Poling	2,598	846	270	33	1	.....	9	.....
Youngstown Hospital ★	Youngstown, O.	W. H. Bunn	4,811[b]	849[b]	...	..	2	7/1	9	125.00
St. Anthony Hospital ★	Oklahoma City	P. M. McNeill	2,047	.....	...	..	1	.....	9	75.00
University Hospitals ★	Oklahoma City	W. Langston	890	10,748	109	44	2	4/1, 9/1	9-18	75.00
Good Samaritan Hospital ★	Portland, Ore.	C. P. Wilson	4,566	6,314	298	105	1	7/1	9	150.00
University of Oregon Medical School Hospitals and Clinics ★[4]	Portland, Ore.	L. Selling	1,734	16,664	351	169	4	7/1	9-18	75.00

Numerical and other references will be found on page 405.

7. MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[a]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies[s]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Abington Memorial Hospital ★	Abington, Pa.	J. T. Beardwood Jr.	1,461	2,063	156	25	2	7/1	9-18	$30.00
Bryn Mawr Hospital ★	Bryn Mawr, Pa.		655	.....	73	31	2	7/1	9	100.00
George F. Geisinger Memorial Hospital ★[4]	Danville, Pa.	W. J. Stainsby	2,004	15,089	139	36	2	7/1	9	75.00
Germantown Dispensary and Hospital ★	Philadelphia	S. Bradbury and C. C. Watt, Jr.	2,088	15,625	186	66	1	7/1	9-36	50.00
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	G. M. Piersol	900	7,864	80	24	2	7/1	9-24	.....
Hahnemann Hospital ★[4]	Philadelphia	G. H. Wells	1,001	7,297	248	..	2	7/1	9-18	50.00
Hosp. of the University of Pennsylvania ★[4]	Philadelphia	O. H. P. Pepper	3,215	19,608	166	109	7	7/1	9	.....
Hospital of the Woman's Medical College ★[4]	Philadelphia	W. G. Leaman	894	.....	54	32	1	7/1	9	50.00
Jefferson Medical College Hospital ★	Philadelphia	H. A. Reimann	2,568	9,669	...	..	3	10/1	9	.....
Jewish Hospital ★[4]	Philadelphia		1,861	1,981	244	177	2	.....	9-18	75.00
Mount Sinai Hospital ★[4]	Philadelphia		1,473[b]	.....	...	..	2	.....	9	.....
Pennsylvania Hospital ★	Philadelphia	D. L. Farley and L. S. Carey	1,603	6,150	240	72	3	7/1	9-18	20.00
Philadelphia General Hospital ★[4]	Philadelphia	R. Boles	4,764	.....	1,096	..	2	Varies	9	93.33
Presbyterian Hospital ★	Philadelphia	T. Klein	.....	.....	...	..	1	7/1	9	50.00
Temple University Hospital ★[4]	Philadelphia		1,662	4,112	135	45	6	7/1	9-36	52.00
Woman's Hospital ★[4]	Philadelphia		1,478	4,183	5	3	2	7/1	9	50.00
Allegheny General Hospital ★	Pittsburgh	E. W. Willets	1,682	5,741	270	40	2	7/1	9	100.00
Elizabeth Steel Magee Hospital [4]	Pittsburgh	J. D. Heard	1,405	.....	122	26	2	7/1	9	83.33
Mercy Hospital ★[4]	Pittsburgh	W. W. Maclachlan	2,279	.....	249	38	1	7/1	9-12	.....
Montefiore Hospital ★[4]	Pittsburgh	L. H. Criep	1,201	4,915	128	35	2	.....	9	.....
Presbyterian Hospital ★[4]	Pittsburgh	A. H. Colwell	2,102	.....	161	21	3	7/1	9-36	50.00
St. Francis Hospital ★[4]	Pittsburgh	A. W. Sherrill and F. B. Utley	1,206	1,833	130	18	3	10/1	9-36	80.00
Reading Hospital ★[4]	Reading, Pa.	W. S. Bertolet	1,078[b]	1,261[b]	231	114	1	7/1	9-12	125.00
Robert Packer Hospital ★	Sayre, Pa.	S. D. Conklin	2,463	5,007	159	35	3	7/1	9-12	125.00
Roper Hospital ★	Charleston, S. C.	W. H. Lelley	2,300	13,585	260	96	4	7/1	9-27	30.00
John Gaston Hospital ★	Memphis, Tenn.	C. H. Sanford	2,274	15,127	446	165	3	.....	9	.....
George W. Hubbard Hospital ★	Nashville, Tenn.	E. L. Turner	943	3,237	87	28	3	1/1	9	75.00
Nashville General Hospital ★[4]	Nashville, Tenn.		1,133	13,418	128	24	4	.....	9	.....
St. Thomas Hospital ★	Nashville, Tenn.	J. O. Manier	1,304	.....	143	42	2	7/1	9-18	125.00
Vanderbilt University Hospital ★[4]	Nashville, Tenn.	R. H. Kampmeier	1,588	26,080	106	64	5	7/1	9	.....
Baylor University Hospital ★[4]	Dallas, Texas	D. W. Carter	3,558	811	205	22	2	1/1	9	50.00
Parkland Hospital ★[4]	Dallas, Texas	H. Hawkins and T. Harrison	1,010[b]	21,202[b]	...	..	4	.....	9+	50.00
John Sealy Hospital ★[4]	Galveston, Texas	C. T. Stone	1,170	10,051	144	67	6	Varies	9+	50.00
Hermann Hospital ★[4]	Houston, Texas	F. R. Lummis	1,498	3,552	126	57	3	1/1	9-36	50.00
Jefferson Davis Hospital ★[4]	Houston, Texas	H. Caplovitz	1,782	10 863	391	103	2	.....	9	50.00
Southern Pacific Hospital [4]	Houston, Texas	M. D. Levy	939	12,754	22	5	2	7/1	9-24	100.00
Scott and White Hospital ★[4]	Temple, Texas	V. M. Longmire	1,770	.....	57	19	2	Varies	9+	250.00
Salt Lake County General Hospital ★[4]	Salt Lake City	M. M. Wintrobe	658	385	119	..	6	.....	9-18	50.00
Mary Fletcher Hospital ★[4]	Burlington, Vt.	E. L. Amidon	1,037	369	119	56	2	7/1	9-12	150.00
University of Virginia Hospital ★[4]	Charlottesville, Va.	H. B. Mulholland	2,437	9,248	140	57	13	7/1	9	.....
Chesapeake and Ohio Hospital ★[4]	Clifton, Forge, Va.	G. S. Hartley	1,920	3,237	65	36	1	5/1	9	60.00
Norfolk General Hospital ★[4]	Norfolk, Va.		1,850	.....	163	23	1	.....	9	.....
Medical College of Virginia Hospital Div. ★[4]	Richmond, Va.	W. B. Porter	3,670	10,432	317	84	7	7/1	9	37.50
King County Hospital ★	Seattle, Wash.	P. Whalen	3,841	5,755	878	228	3	7/1	9-18	90.00
Virginia Mason Hospital ★	Seattle, Wash.	J. M. Blackford	3,189	.....	203	57	2	7/1	9-18	100.00
Chesapeake and Ohio Hospital ★	Huntington, W. Va.	W. E. Yest	1,701[b]	5,075[b]	...	..	1	.....	9	.....
St. Mary's Hospital ★	Huntington, W. Va.	W. C. Swann	1,614	.....	239	57	1	.....	9	100.00
State of Wisconsin General Hospital ★[4]	Madison, Wis.	J. S. Evans	3,645	20,045	115	72	9	1/1, 4/1	9-36	25.00
Columbia Hospital ★	Milwaukee	J. J. Pink	848	.....	92	38	1	7/1	9-18	50.00
Milwaukee County Hospital ★[4]	Milwaukee	F. D. Murphy	7,246	13,762	810	258	11	7/1	9-36	65.32
St. Joseph's Hospital ★	Milwaukee	R. E. Fitzgerald	2,227	.....	293	39	1	7/1	9-24	100.00
Queens Hospital ★[4]	Honolulu, Hawaii	H. L. Arnold Sr.	5,741	.....	198	48	1	7/1	9-18	150.00

Hospitals, 246; Assistant Residencies and Residencies, 1,236

8. MIXED

In addition to the hospitals listed below, all hospitals approved for intern training (785) are likewise accredited for mixed residencies.

Name of Hospital	Location	Chief of Service	Inpatients Treated[a]	Deaths	Autopsies	Asst. Res. and Residencies[s]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Baptist Hospitals	Birmingham, Ala.	J. L. Carmichael	7,068	168	34	5	Varies	9	$150.00
St. Vincent's Hospital	Birmingham, Ala.	H. E. Conwell	4,434	83	20	4	Varies	9	.....
South Highlands Infirmary	Birmingham, Ala.	L. E. Kirby	6,415	131	30	4	1/1, 9/1	9	120.00
St. Margaret's Hospital	Montgomery, Ala.	J. H. Blue	5,741	229	12	3	Varies	9	.....
St. Mary's Hospital and Sanatorium	Tucson, Ariz.	J. A. Omer	5,158	183	23	2	.....	9	.....
Leo N. Levi Memorial Hospital	Hot Springs, Ark.	D. C. Lee	968	46	11	2	.....	9	.....
Kern General Hospital	Bakersfield, Calif.	N. N. Rilcoff	7,325	502	149	6	.....	9	.....
Paradise Valley Sanitarium and Hospital	National City, Calif.	A. R. Stadin	4,551	128	26	3	.....	9	.....
Monterey County Hospital	Salinas, Calif.	J. C. Sharp	1,783	144	23	4	7/1	9-12	100.00
St. Helena Sanitarium and Hospital	Sanitarium, Calif.	G. K. Abbott	3,447	4,776	..	2	7/1	9	108.03
Sonoma County Hospital [4]	Santa Rosa, Calif.	J. L. Spear	2,288	302	104	7	.....	9	.....
Memorial Hospital [4]	Colorado Spgs., Colo.	P. A. Draper	2,890	124	11	2	7/1	9-12	185.00
St. Francis Hospital and Sanatorium	Colorado Spgs., Colo.	G. W. Bancroft	2,426	102	21	2	.....	9	.....
St. Mary Hospital	Pueblo, Colo.	J. Snedee	2,967	158	12	2	.....	9	.....
Bristol Hospital	Bristol, Conn.	R. A. Richardson	3,066	124	15	2	.....	9	.....
Greenwich Hospital [4]	Greenwich, Conn.	J. A. McCreery	2,985	100	49	3	7/1	9-12	75.00
Riverside Hospital [4]	Jacksonville, Fla.	T. Z. Cason	1,677	51	8	1	.....	9	.....
St. Joseph's Hospital	Alton, Ill.	C. E. Merkle	4,920	179	23	3	.....	9	.....
MacNeal Memorial Hospital [4]	Berwyn, Ill.	J. C. Smith	6,240	206	60	4	.....	9	.....
St. Francis Hospital	Blue Island, Ill.	E. J. Pronger	3,657	108	32	3	.....	9	.....
St. Anthony's Hospital	Rock Island, Ill.	J. C. Souders	3,589	180	36	2	.....	9	.....

Numerical and other references will be found on page 405.

8. MIXED—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Deaths	Autopsies	Asst. Res. and Residencies [5]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Clinic Hospital	Bluffton, Ind.	T. E. Caylor and H. D. Caylor	1,942	68	36	2	.....	9	$100.00
St. Mary's Hospital	Evansville, Ind.	E. H. Weber	4,618	147	19	2	.....	9	.....
Lafayette Home Hospital [4]	Lafayette, Ind.	F. T. Romberger	3,751	136	5	3	.....	9	.....
St. Luke's Methodist Hospital	Cedar Rapids, Iowa	F. Johnston	5,916	257	20	2	9/1, 10/1	9	175.00
Jewish Hospital	Louisville, Ky.	W. C. Martin	2,775	135	19	2	6/1	9-12	150.00
E. A. Conway Memorial Hospital [4]	Monroe, La.	F. C. Bennett	5,289	239	26	6	.....	9	.....
Suburban Hospital	Bethesda, Md.	C. R. Halley	1,580	65	33	2	4/1	9	100.00
Long Island Hospital	Boston	R. I. Smith	871	154	16	11	Varies	9	208.33
St. Anne's Hospital	Fall River, Mass.	E. E. Hussey	4,511	90	37	2	Varies	9	.....
Framingham Union Hospital	Framingham, Mass.	E. A. Gaston	3,056	80	12	2	1/1, 7/1	9	41.67
Malden Hospital	Malden, Mass.	R. Hirtle	5,327	194	23	3	7/1	9-18	100.00
Tewksbury State Hospital and Infirmary	Tewksbury, Mass.	C. W. Houghton	1,634	395	39	7	.....	9	.....
Parkside Hospital	Detroit	R. G. Robinson	1,685	42	2	3	10/1	9-24	150.00
Saratoga General Hospital	Detroit	C. V. Smith	6,239	...	..	3	Varies	9	125.00
Mercy Hospital	Muskegon, Mich.	E. S. Thornton	4,594	186	16	2	.....	9	.....
St. Joseph Mercy Hospital [4]	Pontiac, Mich.	O. O. Beck	7,782	240	20	6	.....	9	.....
Wyandotte General Hospital [4]	Wyandotte, Mich.	S. A. Kwasiborski	5,447	184	62	4	1/1, 7/1, 10/1	9-12	250.00
Hibbing General Hospital	Hibbing, Minn.	C. F. Carstens	3,556	118	101	2	.....	9	.....
Eitel Hospital	Minneapolis	E. W. Bedford	5,148	128	30	2	.....	9	.....
Fairview Hospital [4]	Minneapolis	E. G. Oppen	6,175	198	50	3	.....	9	.....
Lutheran Deaconess Home and Hospital	Minneapolis	H. Ulrich	6,563	183	45	1	.....	9	.....
Midway Hospital	St. Paul	G. Earl	4,105	88	41	2	.....	9	.....
Northern Pacific Beneficial Association Hosp.	St. Paul	B. I. Derauf	3,172	110	14	2	7/1	9-12	.....
Alexian Brothers Hospital	St. Louis	H. Unterberg	2,163	162	53	2	7/1	9	200.00
Douglas County Hospital	Omaha	T. D. Boler	1,725	288	39	3	.....	9	.....
Elliot Hospital [4]	Manchester, N. H.	G. F. Dwinell	2,834	90	60	2	7/1	9-12	75.00
Sacred Heart Hospital	Manchester, N. H.	D. J. Sullivan	2,882	91	39	2	.....	9-24	100.00
Auburn City Hospital [4]	Auburn, N. Y.	G. P. Ross	6,198	207	47	3	1/1	9-12	75.00
Jewish Sanitarium and Hospital for Chronic Diseases [4]	Brooklyn	B. Koven	221	147	36	2	1/1	9-24	200.00
St. Joseph Hospital	Far Rockaway, N. Y.	A. S. Tepper	3,170	90	15	2	Varies	9	.....
Kingston Hospital	Kingston, N. Y.	G. W. Ross	2,510	149	18	2	.....	9	.....
Beekman Hospital [4]	New York City	R. Colp	2,060	64	22	2	1/1, 10/1	9-12	75.00
Richmond Memorial Hospital	Staten Island, N. Y.	D. V. Catalano	2,257	135	17	4	.....	9	.....
Wyoming County Community Hospital	Warsaw, N. Y.	H. S. Martin	2,581	137	18	4	.....	9	.....
Mercy Hosptial	Charlotte, N. C.	R. H. Lafferty	5,636	165	35	3	Varies	9	125.00
Highsmith Hospital	Fayetteville, N. C.	J. F. Highsmith	4,621	170	6	3	Varies	9	100.00
Park View Hospital	Rocky Mount, N. C.	F. S. Boice	3,295	139	13	2	7/1, 10/1	9	100.00
St. John's Hospital [4]	Fargo, N. D.	W. H. Long	4,923	165	41	3	.....	9	.....
Glenville Hospital [4]	Cleveland	J. P. Anderson	3,411	104	28	2	7/1	9	150.00
Grace Hospital	Cleveland	A. E. Biddinger	2,376	38	8	2	.....	9	.....
Woman's Hospital [4]	Cleveland	R. A. Warren	4,092	90	31	4	.....	9	150.00
Mansfield General Hospital [4]	Mansfield, Ohio	W. E. Wygant	4,985	208	9	1	.....	9	.....
Protestant Hospital	Nashville, Tenn.	W. W. Wilkerson	4,068	164	25	2	.....	9	.....
Medical Arts Hospital	Dallas, Tex.	J. G. McLaurin	4,975	106	11	2	.....	9	.....
All Saints Hospital	Fort Worth, Tex.	A. B. Pumphrey	4,068	130	30	3	.....	9-12	200.00
St. Mary's Infirmary	Galveston, Tex.	G. T. Lee	4,739	144	32	1	.....	9	.....
Elizabeth Buxton Hospital	Newport News, Va.	J. W. Sayre	5,217	173	77	3	.....	9	.....
Riverside Hospital	Newport News, Va.	G. C. Tyler	5,382	151	21	3	.....	9	.....
Grace Hospital	Richmond, Va.	A. L. Herring	4,135	79	5	2	.....	9	.....
Retreat for the Sick	Richmond, Va.	A. S. Brinkley	4,516	122	23	3	.....	9	100.00
St. Elizabeth's Hospital	Richmond, Va.	J. S. Harsley	1,543	52	45	2	.....	9	.....
Sheltering Arms Hospital [4]	Richmond, Va.	J. P. Lynch	880	41	19	2	7/1	9	100.00
Maynard Hospital	Seattle, Wash.	W. E. Glasgow	3,421	84	40	2	.....	9	.....
McMillan Hospital	Charleston, W. Va.	W. O. McMillan	3,034	38	9	2	7/1	9	200.00
St. Francis Hospital	Charleston, W. Va.	R. L. Anderson	4,521	129	10	4	.....	9	150.00
St. Mary's Hospital	Clarksburg, W. Va.	J. F. Lembright	4,652	132	52	2	.....	9	.....
Mercy Hospital	Janesville, Wis.	W. H. McGuire	3,130	199	16	2	.....	9	.....
La Crosse Lutheran Hospital	La Crosse, Wis.	A. H. Gundersen	3,742	107	44	1	7/1	9	150.00
St. Mary's Hospital	Superior, Wis.	J. R. McNutt	3,169	202	29	1	.....	9	.....

Hospitals, 80; Assistant Residencies and Residencies, 225

9. NEUROLOGY

The following services are approved by the Council and the American Board of Psychiatry and Neurology (See footnotes 1, 2 and 3)

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [5]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital ★[3,4]	Los Angeles	S. D. Ingham	1,691	1,209	550	243	2	.....	9-24	$157.20
Gallinger Municipal Hospital ★[2,4]	Washington, D. C.		482	.....	36	12	1	.....	9+	.....
George Washington University Hospital ★[2]	Washington, D. C.	W. Freeman	134	366	3	1	2	9/1	9+	50.00
St. Luke's Hospital ★[2]	Chicago	A. P. Solomon	259	520	4	4	1	7/1	9-36	25.00
University of Chicago Clinics ★[2]	Chicago	R. B. Richter	184	2,415	10	8	2	Every 9 mos	9	25.00
University Hospitals ★[3,4]	Iowa City, Ia.	C. Van Epps	1,033	823	33	22	2	7/1	9	25.00
Charity Hospital of Louisiana ★[3,4]	New Orleans		816	3,757	123	21	10	Varies	9-12	60.00
Baltimore City Hospital ★[3]	Baltimore	F. Ford	.....	.....	...	..	2	4/1	9-12	40.00
Boston City Hospital ★[3,4]	Boston	D. Denny-Brown	374	4,118	24	3	10	7/1	9	50.00
Massachusetts General Hospital ★[3]	Boston		322[b]	6,597[b]	...	..	1	.....	9	.....
University Hospital ★[3,4]	Ann Arbor, Mich.	C. D. Camp	519	5,317	20	14	2	Varies	9+	100.85
Henry Ford Hospital ★[1,4]	Detroit	T. J. Heldt	(See Psychiatry)				2	7/1	9-36	175.00
Eloise Hospital and Infirmary ★[1,4]	Eloise, Mich.	R. T. Costello	623	719	39	14	2	7/1	9-12	160.00
Mayo Foundation [3]	Rochester, Minn.	H. W. Woltman	(See page 405)				10	.....	9	.....
Homer G. Phillips Hospital ★[3,5]	St. Louis	E. F. Gildea	782	808	142	19	2	1/1	9	80.00
Brooklyn Hospital ★[2]	Brooklyn	H. R. Merwarth	369[b]	190	...	..	2	.....	9+	.....
Kings County Hospital ★[3,4]	Brooklyn	A. Rabiner	1,286	1,847	658	70	4	7/1	9-18	110.00
Bellevue Hospital, Div. II—Cornell U. ★[3,4]	New York City	F. Kennedy	302	5,345	38	14	5	Varies	9+	25.00
Bellevue Hospital, Div. III—N. Y. Univ. ★[3,4]	New York City	S. B. Wortis	3,000	1,500	38	14	2	Varies	9-36	25.00
Goldwater Memorial Hospital ★[2,4]	New York City	H. A. Riley and E. G. Zabriskie	680	310	63	18	8	7/1	9-12	50.00

Numerical and other references will be found on page 405.

9. NEUROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Lenox Hill Hospital ★[2,4]	New York City	T. K. Davis	253	.....	14	6	1	7/1	9	$85.00
Metropolitan Hospital ★[2,4]	New York City	S. P. Jewett	114[b]	1,757	26	5	1	.....	9	.....
Montefiore Hosp. for Chronic Diseases ★[3,4]	New York City		191	.....	25	14	5	1/1, 7/1	9-18	50.00
Morrisania City Hospital ★[2]	New York City		.....	.....	...	..	1	.....	9	.....
Mount Sinai Hospital ★[3,4]	New York City	(Includes Neurosurgery and Psychiatry)					5	1/1, 7/1	9-18	50.00
Presbyterian Hospital ★[3,4]	New York City	T. J. Putnam	(See Neurosurgery)				15	.....	9+	40.00
New York City Hospital ★[2]	New York City	J. H. Nolan	527	1,330	141	32	1	7/1	9	110.00
Duke Hospital ★[3,4]	Durham, N. C.	R. Graves	172	1,866	...	..	4	.....	9	83.33
Cincinnati General Hospital ★[2]	Cincinnati	H. D. McIntyre and C. Aring	.....	1,155	...	..	2	.....	9+	.....
Hospital of the Univ. of Pennsylvania ★[3,4]	Philadelphia	G. D. Gammon	437	2,662	14	9	2	7/1	9+	.....
Jefferson Medical College Hospital ★[3]	Philadelphia	B. J. Alpers	488	2,300	...	..	1	.....	9+	.....
Temple University Hospital ★[3,4]	Philadelphia		176	843	13	3	1	7/1	9-36	52.00

Hospitals, 31; Assistant Residencies and Residencies, 111

10. NEUROSURGERY

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital ★[4]	Los Angeles	C. Rand	2,124	648	231	24	3	Varies	9-36	$157.20
Franklin Hospital ★	San Francisco	H. A. Brown	582	.....	17	7	4	7/1	9	.....
University of California Hospital ★[4]	San Francisco	H. C. Naffziger	350	.....	18	14	2	Varies	9	50.00
Hartford Hospital ★	Hartford, Conn.	O. G. Wiedman	.....	.....	...	..	2	7/1	9-36	50.00
Chicago Memorial Hospital ★	Chicago	P. C. Bucy	185	1,000	8	7	1	1/1	9-24	200.00
Illinois Neuropsychiatric Institute [5]	Chicago	E. Oldberg	295[b]	.....	...	..	3	.....	9+	.....
Passavant Memorial Hospital ★	Chicago	L. Davis	(Included in Surgery)				1	.....	9	.....
Presbyterian Hospital ★	Chicago	A. Verbrugghen	194	2,156	14	10	1	7/1	9-36	50.00
St. Luke's Hospital ★	Chicago	E. Oldberg	166	.....	19	14	1	7/1	9-36	25.00
University of Chicago Clinics ★	Chicago	A. E. Walker	253	1,231	14	12	2	.....	9	25.00
Johns Hopkins Hospital ★	Baltimore	W. E. Dandy	880	.....	58	34	3	.....	9+	.....
Boston City Hospital ★[4]	Boston	D. Munro	512	.....	89	10	2	7/1	9	50.00
Lahey Clinic	Boston		.....	.....	...	..	6	.....	9+	.....
Massachusetts General Hospital ★	Boston		232[b]	.....	...	..	2	.....	9	.....
Henry Ford Hospital ★[4]	Detroit	A. S. Crawford	312	1,447	21	7	2	7/1	9-36	175.00
University Hospitals ★	Minneapolis	W. T. Peyton	181	528	35	32	1	7/1	9	.....
Mayo Foundation	Rochester, Minn.	A. W. Adson	(See page 405)				8	.....	9	.....
Barnes Hospital ★	St. Louis	E. Sachs	269	.....	22	18	2	.....	9	.....
Albany Hospital ★[4]	Albany, N. Y.	E. H. Campbell	357	167	29	12	2	7/1	9-12	25.00
Jewish Hospital ★[4]	Brooklyn	L. M. Davidoff	569	498	45	15	3	.....	9-24	25.00
Kings County Hospital ★	Brooklyn	E. J. Browder	2,020	1,193	197	90	2	7/1	9-18	60.00
Buffalo Hospital ★[4]	Buffalo	W. B. Hamby	346	7	38	21	1	7/1	9-12	25.00
Bellevue Hospital, Div. III—N. Y. Univ. ★[4]	New York City	A. Wright	1,229	4,800	90	80	2	Varies	9-36	25.00
Presbyterian Hospital ★[4,7]	New York City	T. J. Putnam	3,897	13,744	158	..	9	.....	9+	40.00
Strong Memorial and Rochester Municipal Hospitals ★[4]	Rochester, N. Y.	J. D. French	225	220	...	..	2	7/1	9-24	66.60
Cincinnati General Hospital ★	Cincinnati	J. P. Evans	271	218	37	30	2	.....	9	.....
Cleveland Clinic Foundation Hospital ★	Cleveland	W. J. Gardner	.....	.....	...	..	4	.....	9+	100.00
White Cross Hospital ★	Columbus, O.	H. E. LeFever	688	.....	47	17	1	7/1	9-12	100.00
Hospital of the Univ. of Pennsylvania ★[4]	Philadelphia	F. C. Grant	602	167	46	39	3	7/1	9-36	.....
Temple University Hospital ★[4]	Philadelphia		282	832	35	16	1	7/1	9-36	52.00
Vanderbilt University Hospital ★[4]	Nashville, Tenn.	C. Pilcher	349	.....	13	8	1	.....	9	.....
University of Virginia Hospital ★[4]	Charlottesville, Va.	W. G. Crutchfield	636	420	26	16	7	7/1	9	25.00
Medical College of Virginia, Hospital Div. ★	Richmond, Va.	C. C. Coleman	913	307	95	15	3	7/1	9	37.50

Hospitals, 33; Assistant Residencies and Residencies, 89

11. OBSTETRICS AND GYNECOLOGY

The following services are approved by the Council and the American Board of Obstetrics and Gynecology

Navy Hospitals

U. S. Naval Hospital ★ (OBG) ..... Annapolis, Md.

U. S. Naval Hospital ★ (OBG) ..... Philadelphia

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated [6] OB	Inpatients Treated [6] Gyn	Outpatient Visits OB	Outpatient Visits Gyn	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Jefferson and Hillman Hospitals ★	Birmingham, Ala.	J. R. Garber and S. G. Stubbins	OBG	903	731	2,129	3,648	4	1/1, 7/1	9-12	$50.00
Employees' Hospital of the Tennessee Coal Iron and Railroad Company ★	Fairfield, Ala.	O. T. West	OB	1,498	....	7,057	....	1	1/1	9	200.00
Los Angeles County Hospital ★[4]	Los Angeles	E. M. Lazard	OBG	4,878	1,422	1,335	4,056	6	Varies	9-42	157.20
White Memorial Hospital ★	Los Angeles	R. J. Thompson	OBG	1,970	778	9,603	6,150	2	7/1	9-12	116.00
Highlands-Alameda County Hospital ★[4]	Oakland, Calif.	C. A. De Puy and O. T. McAllister	OBG	840	341	....	....	2	7/1	9	80.00
Children's Hospital ★[4]	San Francisco	H. A. Stephenson	OBG	2,005	580[b]	....	....	2	.....	9	.....
St. Mary's Hospital ★	San Francisco	P. Arnot	OB	1,867	....	....	....	2	7/1	9-12	100.00
San Francisco Hospital ★[4]	San Francisco	W. G. Moore	OBG	714	754	2,965	....	4	Varies	9	115.00
Stanford University Hospitals ★[4]	San Francisco	A. V. Pettit	OBG	1,895	888	13,971		4	7/1	9-18	50.00
University of California Hospital ★[4]	San Francisco	H. F. Traut	OBG	1,060	819	5,873	6,927	4	Varies	9	50.00
Santa Clara County Hospital ★	San Jose, Calif.	A. Shufelt	OBG	296	307[b]	....	....	1	.....	9	.....
Colorado General Hospital ★	Denver	C. B. Ingraham	OBG	506	337	3,455	1,607	2	7/1	9-18	70.00
Grace Hospital ★[4]	New Haven, Conn.	H. B. Perrins	OBG	1,591	586	316	117	4	.....	9	.....
Hospital of St. Raphael ★	New Haven, Conn.		OB	1,962	....	900	....	2	.....	9	75.00
New Haven Hospital ★[4]	New Haven, Conn.	A. H. Morse	OBG	1,606	681	3,148	2,327	4	7/1	9-12	.....
Columbia Hospital for Women and Lying-In Asylum [4]	Washington, D. C.		OBG	3,734	1,050	8,453	4,093	9	1/1	9-24	15.00
Freedmen's Hospital ★[4]	Washington, D. C.	J. W. Ross	OBG	2,171	930	3,728	3,054	3	1/1	9-36	.....
Gallinger Municipal Hospital ★[4]	Washington, D. C.		OBG	3,365	514	3,662	2,719	4	7/1	9	.....

Numerical and other references will be found on page 405.

11. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated [6] OB	Inpatients Treated [6] Gyn	Outpatient Visits OB	Outpatient Visits Gyn	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Garfield Memorial Hospital ★[4]	Washington, D. C.	H. P. Parker	OB	2,960	....	3,475	....	3	7/1	9-18	$75.00
Providence Hospital ★	Washington, D. C.	G. J. Ellis	OB	2,924	....	784	....	1	.....	9	75.00
Sibley Memorial Hospital ★	Washington, D. C.	J. Kotz	OB	2,958	....	....	....	1	.....	9-12	75.00
Grady Memorial Hospital ★	Atlanta, Ga.	J. R. McCord	OBG	3,161	909	12,496	15,660	10	7/1	9	20.00
University Hospital ★	Augusta, Ga.	R. Torpin	OBG	1,970	906	5,257	1,252	3	10/1	9-18	35.00
Chicago Lying-in Hospital and Dispensary	Chicago			(See University of Chicago Clinics)							
Chicago Maternity Center [4]	Chicago	B. E. Tucker	OB	....	....	....	....	11	.....	9-18	150.00
Cook County Hospital ★[4]	Chicago	J. Fitzgerald	OB	8,214	....	3,781	....	8	1/1, 7/1	9-36	25.00
Grant Hospital ★[4]	Chicago	F. H. Falls	OB	1,459	....	....	....	1	7/1	9-36	125.00
Henrotin Hospital ★[4]	Chicago	E. L. Cornell	OB	504	....	....	....	1	.....	....	....
Lewis Memorial Maternity Hospital [4]	Chicago	H. E. Schmitz	OBG	1,350	19	11,717	358	6	7/1	9-60	50.00
Mercy Hospital-Loyola University Clinics ★[4]	Chicago	H. E. Schmitz	OBG	750	800	1,190	2,540	3	.....	9-36	75.00
Michael Reese Hospital ★[4]	Chicago	L. E. Frankenthal Jr.	OBG	1,996	1,304	972	1,579	5	10/1	9-36	25.00
Mount Sinai Hospital ★[4]	Chicago	A. E. Kanter and A. F. Lash	OBG	....	508	815	544	1	7/1	9	50.00
		A. A. Curtis	Gyn	....	858	....	1,026	2	.....	9	.....
Passavant Memorial Hospital ★[4]	Chicago	N. S. Heaney	OBG	3,014		982		4	1/1, 7/1	9	50.00
Presbyterian Hospital ★	Chicago	W. W. Gibbs and P. M. Santos	OBG	1,318	507	3,043	2,531	4	1/1	9	50.00
Provident Hospital ★	Chicago	F. H. Falls	OB	819	....	6,558	....	3	.....	9-36	55.00
Research and Educational Hospitals ★[4]	Chicago		OB	2,189	....	....	....	1	.....	9	.....
St. Anne's Hospital ★	Chicago	C. Geiger	OB	1,113	....	1,897	....	1	1/10	9	125.00
St. Joseph Hospital ★	Chicago	H. O. Jones	OBG	1,459	891	4,064	1,685	3	7/1	9-36	25.00
St. Luke's Hospital ★	Chicago	H. E. Schmitz	OB	324	....	2,218	....	1	7/1	9-12	50.00
St. Vincent's Infant and Maternity Hosp. [4]	Chicago	W. J. Dieckmann	OBG	4,232	661	25,344	10,074	6	.....	9-36	25.00
University of Chicago Clinics ★[4]	Chicago	G. C. Richardson	OB	1,463	....	....	....	1	.....	9	.....
Wesley Memorial Hospital ★[4]	Chicago	M. E. Williams and B. E. Tucker	OBG	1,008	536	1,083	3,055	1	5/1	9-36	100.00
Women and Children's Hospital ★[4]	Chicago	P. E. Lawler	OB	2,149	....	....	....	2	10/15	9	150.00
Little Company of Mary Hospital ★	Evergreen Park, Ill.	W. A. Michael	OBG	2,409	796	217	191	1	7/1	9-36	150.00
St. Francis Hospital ★[4]	Peoria, Ill.	J. W. Hofmann and H. F. Beckman	OBG	872	783	3,872	3,699	2	4/1	9-24	30.00
Indianapolis City Hospital ★[4]	Indianapolis	H. F. Beckman	OB	1,798	....	3,495	....	2	.....	9-36	33.00
Indiana University Medical Center ★[4]	Indianapolis	H. F. Beckman	OB	3,675	....	....	....	1	3/18	9-18	80.00
Methodist Hospital ★	Indianapolis	E. D. Plass	OBG	891	992	294	1,372	11	7/1	9	25.00
University Hospitals ★[4]	Iowa City, Ia.	L. A. Calkins	OBG	1,300	....	3,085	2,487	3	.....	9	.....
University of Kansas Hospitals ★[4]	Kansas City, Kan.	R. A. West	OBG	2,390	1,393	....	....	1	Varies	9	125.00
St. Francis Hospital ★	Wichita, Kan.	C. W. Hibbett	OBG	1,357	623	6,624	5,723	5	7/1	9	54.00
Louisville General Hospital ★	Louisville, Ky.		OBG	6,123	2,742	26,688	13,652	18	Varies	9-36	60.00
Charity Hospital of Louisiana ★[4]	New Orleans	A. Caire	OB	1,272	....	2,818	....	2	.....	9	50.00
Touro Infirmary ★	New Orleans	H. Miller	Gyn	....	1,041	....	1,182	2	.....	9	50.00
Baltimore City Hospitals ★	Baltimore	L. H. Douglas	OB	1,430	....	39	....	5	7/1	9-12	80.00
Franklin Square Hospital ★[4]	Baltimore	I. A. Siegel	OB	2,870	....	1,602	....	4	10/1	9	100.00
Johns Hopkins Hospital ★[4]	Baltimore	N. J. Eastman	OB	2,413	....	14,792	....	5	7/1	9-72	.....
		R. W. TeLinde	Gyn	....	1,990	....	10,209	5	7/1	9-72	.....
Maryland General Hospital ★	Baltimore	E. H. Kloman	OBG	775	432	204	17	2	.....	9	.....
Mercy Hospital ★	Baltimore	T. K. Galvin and E. P. Smith	OBG	1,288	671[b]	....	....	6	7/1	9-12	50.00
Provident Hospital and Free Dispensary ★	Baltimore	L. H. Douglass	OB	815	....	1,557	....	1	1/1	9-12	25.00
St. Joseph's Hospital ★	Baltimore	T. K. Galvin	OBG	1,415	655	2,135	926	3	7/1	9-36	50.00
Sinai Hospital ★[4]	Baltimore		OB	1,744	....	5,237	....	2	7/1	9-12	35.00
Union Memorial Hospital ★	Baltimore	J. McF. Bergland	OB	1,110	....	2,105	....	2	7/1	9-24	40.00
University Hospital ★[4]	Baltimore	L. H. Douglass	OB	1,110	....	2,105	....	2	7/1	9-24	40.00
		J. M. Hundley Jr.	Gyn	....	910	....	5,642	3	7/1	9	50.00
Boston City Hospital ★[4]	Boston	J. P. Cohen and F. L. Good	OBG	2,299	2,128	6,216	4,460	2	7/1	9	50.00
Boston Lying-In Hospital [4]	Boston	F. C. Irving	OB	3,138	....	3,036	....	6	1/1	9	100.00
Carney Hospital ★	Boston	L. E. Phaneuf	OBG	970	590	3,330	1,300	3	9/1	9	.....
Evangeline Booth Maternity Hospital and Home [4]	Boston	A. K. Paine	OB	802	....	2,123	....	2	3/15	9	83.33
Massachusetts Memorial Hospitals ★[4]	Boston	C. W. Sewall	OB	1,280	....	4,624	....	2	7/1	9	.....
Free Hospital for Women [4]	Brookline, Mass.	F. A. Pemberton	Gyn	....	2,457	....	11,537	4	.....	9-12	25.00
University Hospital ★[4]	Ann Arbor, Mich.	N. F. Miller	OBG	920	758	2,100	4,443	4	Varies	9	100.85
City of Detroit Receiving Hospital ★[4]	Detroit	W. Seeley	OBG	[e]	1,052	[e]	2,800	2	7/1	9-48	172.50
Florence Crittenton Hospital [4]	Detroit	H. A. Pearce	OBG	1,705	847[b]	....	....	4	.....	9	125.00
Grace Hospital ★[4]	Detroit	M. A. Darling	OBG	2,377	1,785	90	893	5	7/1	9-36	125.00
Harper Hospital ★[4]	Detroit	G. Kamperman	OBG	2,484	857	....	....	3	.....	9	.....
Henry Ford Hospital ★[4]	Detroit	J. P. Pratt	OBG	1,567	776	7,680	18,405	6	7/1	9-48	175.00
Herman Kiefer Hospital	Detroit	W. F. Seeley	OBG	956	[f]	....	[f]	2	7/1	9-24	200.00
Mount Carmel Mercy Hospital ★[4]	Detroit	A. K. Northrop	OB	3,943	....	....	....	1	.....	9	.....
Providence Hospital ★	Detroit	I. S. Gellert	OBG	3,341	1,501	....	....	4	.....	9-48	140.00
St. Mary's Hospital ★	Detroit	V. J. Turcotte	OBG	1,959	1,096	123	317	3	Varies	9-36	150.00
Woman's Hospital ★[4]	Detroit	H. M. Nelson and L. E. Daniels	OBG	2,645	1,135[b]	....	....	6	.....	9-18	100.00
St Mary's Hospital ★[4]	Duluth, Minn.	J. R. Manley	OB	1,513	....	236	....	1	7/1	9	75.00
Minneapolis General Hospital ★[4]	Minneapolis	L. A. Lang	OBG	290	297	760	932	2	7/1	9-18	91.50[c]
St Mary's Hospital ★[4]	Minneapolis		OB	2,133	....	....	....	2	.....	9	.....
University Hospitals ★	Minneapolis	J. L. McKelvey	OBG	311	503	888	2,987	3	.....	9	.....
Mayo Foundation	Rochester, Minn.	R. D. Mussey	OBG	(See page 405)				12	.....	9	.....
Ancker Hospital ★	St. Paul	A. G. Schulze	OBG	260	205	579	1,042	1	.....	9	.....
Charles T. Miller Hospital ★	St. Paul	E. C. Hartley and R. Countryman	OBG	1,417	674	2,189	1,051	2	7/1	9	.....
Kansas City General Hospital ★	Kansas City, Mo.	T. H. Aschman	OBG	514	547	2,158	1,702	3	7/1	9-36	50.00
Homer G. Phillips Hospital ★[4]	St. Louis	T. K. Brown	OBG	1,556	894	1,035	1,586	5	1/1	9	80.00
Jewish Hospital ★[4]	St. Louis	M. Meyerhardt and S. Soule	OBG	928	734	608	769	2	7/1	9	30.00
St. Louis City Hospital ★[4]	St. Louis	W. M. Allen	OBG	1,325	1,034	1,193	1,302	3	7/1	9	80.00
St. Louis Maternity Hospital [4]	St. Louis	W. M. Allen	OBG	2,475	[k]	....	....	7	7/1	9	.....
St. Luke's Hospital ★	St. Louis	C. D. O'Keefe	OBG	796	678	....	....	1	7/1	9	75.00
St. Mary's Group of Hospitals ★	St. Louis	W. H. Vogt	OBG	2,463	1,266	9,244	4,269	6	7/1	9	35.00
Creighton Memorial St. Joseph's Hosp. ★	Omaha	M. E. Grier	OBG	1,665	1,485	1,044	1,043	2	7/1	9-24	100.00
University of Nebraska Hospital ★	Omaha		OBG	362	255	....	....	1	.....	9	.....
Cooper Hospital ★	Camden, N. J.	A. B. Davis	OB	2,751	....	8,413	....	2	7/1	9-36	60.00
Jersey City Hospital ★[4]	Jersey City, N. J.	F. C. Holden	Gyn	....	1,128	....	2,977	4	Varies	9-12	35.00
Margaret Hague Maternity Hospital [4]	Jersey City, N. J.	S. A. Cosgrove	OB	7,734	....	17,703	....	14	.....	9-36	50.00
Albany Hospital ★[4]	Albany, N. Y.	A. J. Wallingford	Gyn	....	2,483	....	790	3	7/1	9-12	25.00
Anthony N. Brady Maternity Home	Albany, N. Y.	G. E. Lochner	OB	1,776	....	1,958	....	2	10/1	9-36	200.00
Beth-El Hospital ★	Brooklyn	A. Koplowitz	OB	2,734	....	2,091	....	2	1/1	9-12	100.00
Brooklyn Hospital ★	Brooklyn	Wm. S. Smith	OBG	1,481	408	3,178	1,274	2	.....	9	.....
Cumberland Hospital ★[4]	Brooklyn	S. Lubin	OB	1,015	....	4,250	....	2	7/1	9-12	50.00

Numerical and other references will be found on page 405.

11. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated [6] OB	Inpatients Treated [6] Gyn	Outpatient Visits OB	Outpatient Visits Gyn	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Greenpoint Hospital ★[4]	Brooklyn	T. S. Welton	OBG	701	482	2,080	2,455	2	4/1, 7/1	9	$110.00
Jewish Hospital ★[4]	Brooklyn		OBG	4,311	1,147	4,317	1,989	5	1/1, 7/1	9-18	25.00
Kings County Hospital ★[4]	Brooklyn	C. Gordon and R. Garlick	OBG	3,024	2,829	9,902	4,207	4	7/1	9-18	110.00
Long Island College Hospital ★[4]	Brooklyn	A. C. Beck	OBG	1,586	789	4,944	1,315	3	7/1	9-36	25.00
Methodist Hospital ★[4]	Brooklyn	G. H. Davis	OBG	1,945	637[b]	....	....	3	.....	9	.....
Norwegian Lutheran Deaconesses' Home and Hospital ★[4]	Brooklyn	B. A. Harris and J. B. Dowd	OB	1,028	....	1,826	....	1	10/1	9	.....
St. Mary's Hospital ★[4]	Brooklyn		OBG	1,251	452	2,979	472	2	7/1	9-27	60.00
Buffalo General Hospital ★[4]	Buffalo	C. L. Randall	OBG	771	1,161	1,303	1,179	3	7/1	9-12	25.00
Children's Hospital [4]	Buffalo	L. A. Siegel	OB	1,942	....	867	....	1	7/1	9	50.00
Edward J. Meyer Memorial Hospital ★[4]	Buffalo	E. G. Winkler	OBG	646	570	1,951	1,282	3	7/1	9-36	39.00
Millard Fillmore Hospital ★	Buffalo	L. F. McLean	OB	3,076	....	....	....	2	7/1	9-12	100.00
Queens General Hospital ★[4]	Jamaica, N. Y.	E. A. Flemming	OBG	1,076	692	3,935	1,886	2	7/1	9-24	110.00
Bellevue Hospital, Div. III—N. Y. Univ. ★[4]	New York City	H. C. Taylor Jr.	OBG	2,059	2,284	7,991	6,155	11	Varies	9-36	25.00
Beth Israel Hospital ★[4]	New York City	H. C. Falk and H. Lorber	Gyn	....	752	....	4,507	2	7/1	9	50.00
Flower and Fifth Avenue Hospitals ★	New York City	L. S. Loizeaux	OBG	1,573	1,247	2,712	515	2	.....	9-12	100.00
Fordham Hospital ★[4]	New York City	A. C. Butts	OB	682	....	....	....	1	7/1	9-12	110.00
French Hospital ★[4]	New York City		OB	1,484	....	....	....	1	.....	9	.....
Harlem Hospital ★[4]	New York City	F. A. Kassebohm	OB	2,411	....	....	....	2	7/1	9	50.00
		H. C. Falk	Gyn	....	1,406[b]	....	....	2	6/1, 7/1	9	50.00
Lenox Hill Hospital ★[4]	New York City	R. L. McCready and R. Van Etten	OB	1,177	....	....	....	1	7/1	9	25.00
Lincoln Hospital ★[4]	New York City	H. Ingraham	OBG	1,702	813	8,404	2,529	3	1/1, 7/1	9-24	110.00
Lying-In Hospital	New York City		OBG	(See New York Hospital)							
Metropolitan Hospital ★[4]	New York City	H. B. Safford	OBG	809	506	5,924	3,394	2	.....	9	.....
Morrisania City Hospital ★[4]	New York City	M. Goodfriend	OB	1,014	....	3,583	....	2	7/1	9	100.00
Mount Sinai Hospital ★[4]	New York City		Gyn	....	834[b]	....	....	3	1/1, 7/1	9-12	50.00
New York City Hospital ★	New York City	J. V. Ricci and K. Johnson	OBG	477	564	3,836	2,489	2	7/1	9	60.00
New York Foundling Hospital	New York City	J. P. Hennessy	OB	1,027	....	4,206	....	2	.....	9	50.00
New York Hospital ★[4]	New York City	H. J. Stander	OBG	4,127	1,426	22,407	10,630	16	7/1	9-60	25.00
New York Infirmary for Women and Children ★[4]	New York City	W. Ragland	OB	1,231	....	4,213	....	1	4/1	9-12	75.00
New York Polyclinic Medical School and Hospital ★	New York City		OB	1,021	....	2,154	....	1	7/1	9	128.25
			Gyn	....	840	....	2,884	1	.....	9	25.00
New York Post-Graduate Medical School and Hospital ★[4]	New York City	W. Dannreuther	Gyn	....	603	....	12,070	2	10/1	9-24	30.00
Presbyterian Hospital ★[4]	New York City	B. P. Watson	OBG	3,578	1,417	19,767	12,468	12	.....	9	50.00
Roosevelt Hospital ★	New York City	T. C. Peightal and H. C. Taylor Jr.	Gyn	....	740	....	2,167	1	7/1	9	.....
St. Vincent's Hospital ★[4]	New York City	J. F. McGrath	OBG	944	1,985	2,087	1,406	2	7/1	9-18	25.00
Sloane Hospital for Women	New York City			(See Presbyterian Hospital)							
Woman's Hospital [4]	New York City	A. H. Aldridge	OBG	2,501	1,997	8,548	15,432	11	1/1, 4/1	9	10.00
Strong Memorial and Rochester Municipal Hospitals ★[4]	Rochester, N. Y.	K. M. Wilson	OBG	1,586	1,167	2,371	2,306	6	7/1	9-48	41.66
General Hospital ★	Syracuse, N. Y.		OB	1,133	....	807	....	3	.....	9	.....
Syracuse Memorial Hospital ★	Syracuse, N. Y.	E. C. Hughes	OB	1,932	....	....	....	3	7/1	9-12	.....
		N. P. Sears	Gyn	....	842	....	....	3	7/1	9-12	.....
Charlotte Memorial Hospital ★[4]	Charlotte, N. C.	W. Z. Bradford	OBG	892	709	2,752	65	2	1/1	9-36	75.00
Duke Hospital ★[4]	Durham, N. C.	B. Carter	OBG	1,485	953	13,361	8,722	6	.....	9	83.33
North Carolina Baptist Hospital ★[4]	Winston-Salem, N. C.	F. R. Lock	OBG	1,275	510	1,547	1,206	4	7/1	9	41.66
City Hospital ★	Akron, O.		OB	3,101	....	....	....	2	.....	9	100.00
Mercy Hospital ★	Canton, O.	L. E. Leavenworth	OBG	2,093	282	....	....	2	7/1	9	100.00
Cincinnati General Hospital ★[4]	Cincinnati	H. L. Woodward	OB	2,152	....	2,272	....	4	7/1	9-24	.....
City Hospital ★	Cleveland	A. H. Bill	OB	706	....	1,208	....	4	.....	9	25.00
Fairview Park Hospital ★	Cleveland	E. D. Saunders	OB	1,929	....	43	....	1	8/1	9	150.00
Mount Sinai Hospital ★	Cleveland	M. Garber	OB	1,363	....	144	....	1	7/1	9-12	100.00
St. Luke's Hospital ★	Cleveland	C. T. Hemmings	OBG	1,907	511	1,629	1,262	4	7/1	9	50.00
University Hospitals ★[4]	Cleveland	A. H. Bill	OB	4,114	....	12,266	....	4	7/1	9	25.00
		A. H. Bill	Gyn	....	1,364	....	5,386	5	7/1	9	25.00
Starling-Loving University Hospital ★	Columbus, O.	P. J. Reel	Gyn	....	566	....	977	3	7/1	9-12	50.00
White Cross Hospital ★	Columbus, O.	W. D. Inglis	OB	2,699	....	190	....	1	7/1	9-12	100.00
Huron Road Hospital ★[4]	East Cleveland		OBG	2,449	1,312	8	122	3	7/1	9-18	60.00
Maumee Valley Hospital ★	Toledo, O.	E. C. Mohr	OBG	120	169	91	111	1	.....	9	.....
Mercy Hospital ★	Toledo, O.	R. C. King	OBG	1,871	779	....	....	1	.....	9	.....
St. Vincent's Hospital ★[4]	Toledo, O.	R. C. King	OB	1,267	....	207	....	1	.....	9	.....
University Hospitals ★	Oklahoma City, Okla.	G. Penick and J. B. Eskridge	OBG	607	441	3,715	3,413	4	.....	9-18	75.00
University of Oregon Medical School Hospitals and Clinics ★[4]	Portland, Ore.	R. B. Watkins	OBG	360	302	1,531	1,115	3	7/1	9-18	75.00
George F. Geisinger Memorial Hospital ★	Danville, Pa.	R. E. Nicodemus	OB	793	....	5,800	....	2	7/1	9	75.00
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	W. R. Nicholson	Gyn	....	487	....	1,127	1	7/1	9-24	.....
Hahnemann Hospital ★	Philadelphia	E. B. Craig and N. F. Paxson	OBG	306	311	6,325	1,853	2	7/1	9-18	50.00
Hosp. of the Protestant Episcopal Church ★[4]	Philadelphia	E. A. Schumann	OBG	1,774	466[b]	6,506[b]	1,584[b]	1	7/1	9	100.00
Hosp. of the University of Pennsylvania ★[4]	Philadelphia	F. L. Payne	OBG	1,517	1,623	8,773	4,289	3	8/1	9-36	.....
Hospital of the Woman's Medical College of Pennsylvania ★[4]	Philadelphia	M. Sturgis	Gyn	....	696	....	....	1	4/1	9-36	50.00
Jefferson Medical College Hospital ★	Philadelphia	L. C. Scheffey and N. W. Vaux	OBG	1,808	1,706	9,421	4,414	2	1/1	9	25.00
Mount Sinai Hospital ★[4]	Philadelphia		OBG	1,950	554[b]	....	....	1	.....	9	.....
Pennsylvania Hospital ★	Philadelphia		OBG	2,730	1,211	10,218	1,848	3	.....	9	.....
Philadelphia General Hospital ★[4]	Philadelphia		OBG	1,699	1,143	....	....	2	7/1	9	93.33
Temple University Hospital ★[4]	Philadelphia		OBG	....	1,021	3,592	1,347	3	7/1	9	52.00
Woman's Hospital ★[4]	Philadelphia		OB	1,478	....	4,183	....	1	7/1	9-12	50.00
			Gyn	....	537	....	1,679	1	7/1	9-12	50.00
Elizabeth Steel Magee Hospital [4]	Pittsburgh	B. Z. Cashman and C. E. Ziegler	OBG	4,007	1,880	4,785	1,410	8	7/1	9	41.66
Montefiore Hospital ★	Pittsburgh	C. J. Barone	OBG	1,280		1,539		1	.....	9	.....
St. Francis Hospital ★	Pittsburgh	J. H. Carroll	OB	1,449	....	405	....	3	.....	9-36	80.00
		B. Z. Cashman	Gyn	....	849	....	576	4	10/1	9-36	80.00
Roper Hospital ★[4]	Charleston, S. C.	R. L. McCrady and L. A. Wilson	OBG	1,695	498	7,947	1,785	4	7/1	9-27	50.00
Baroness Erlanger Hospital ★	Chattanooga, Tenn.	D. N. Williams	OB	2,421	....	2,872	....	2	.....	9	.....
John Gaston Hospital ★	Memphis, Tenn.	W. T. Pride	OB	2,469	....	14,836	....	2	.....	9	.....
		W. T. Pride	Gyn	....	744	....	5,393	1	.....	9	.....

Numerical and other references will be found on page 405.

11. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated [6] OB	Inpatients Treated [6] Gyn	Outpatient Visits OB	Outpatient Visits Gyn	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
George W. Hubbard Hospital of Meharry Medical College *	Nashville, Tenn.	R. S. Duke	OBG	376	251	1,757	502	3	1/1	9	$75.00
Nashville General Hospital *	Nashville, Tenn.	C. W. Black	OBG	986	549	4,083	4,122	4	.....	9	.....
Vanderbilt University Hospital *[4]	Nashville, Tenn.	L. E. Burch	OBG	1,344	479	5,810	4,773	4	7/1	9	.....
Baylor University Hospital *[4]	Dallas, Tex.	J. W. Bourland	OB	3,927	....	1,864	....	2	.....	9	.....
Parkland Hospital *[4]	Dallas, Tex.	W. Mengert	OB	1,352	....	....	....	3	.....	9	.....
John Sealy Hospital *[4]	Galveston, Tex.	W. R. Cooke	OBG	1,040	735	....	9,127	3	Varies	9	50.00
Hermann Hospital *[4]	Houston, Tex.	E. W. Bertner	OBG	924	952	2,182	2,146	3	1/1	9-36	50.00
Methodist Hospital *	Houston, Tex.	.....	OB	866	....	1,710	....	1	.....	9	.....
St. Joseph's Infirmary [4]	Houston, Tex.	G. S. Ham	OB	6,546	....	857	....	2	2/1	9-36	150.00
University of Virginia Hospital *[4]	Charlottesville, Va.	T. J. Williams	OBG	1,088	4,476	4,962	....	7	7/1	9	15.00
Medical College of Virginia, Hosp. Div.*[4]	Richmond, Va.	H. H. Ware	OB	2,778	....	7,522	....	3	7/1	9	37.50
Providence Hospital *	Seattle	E. B. Brookbank	OB	2,522	....	262	....	2	7/1	9-36	100.00
Northern Permanente Foundation *	Vancouver, Wash.	R. E. Gillett	OBG	590	235	1,808	2,512	1	.....	9	.....
St. Mary's Hospital *	Huntington, W. Va.	J. R. Bloss	OB	1,437	....	....	....	1	.....	9	100.00
State of Wisconsin General Hospital *[4]	Madison, Wis.	J. W. Harris	OBG	1,290		6,197		4	4/1	9-36	25.00
Milwaukee County Hospital *[4]	Milwaukee	H. J. Olson	OBG	394	566	924	1,057	4	7/1	9-36	65.32

Hospitals, 195; Assistant Residencies and Residencies, 656

12. OPHTHALMOLOGY AND OTOLARYNGOLOGY

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated [6] Oph	Inpatients Treated [6] Otol	Outpatient Visits Oph	Outpatient Visits Otol	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Children's Hospital [4]	Los Angeles	J. M. Brown	Otol	....	1,061	....	1,625	1	.....	9	.....
Los Angeles County Hospital *[4]	Los Angeles	W. Boyce, R. Irvine	Oph	600	....	9,147	....	2	Varies	9-24	$157.20
		P. Viole	Otol	....	1,546	....	6,644	2	Varies	9-24	157.20
White Memorial Hospital *	Los Angeles	W. A. Boyce	Oph	311	....	7,212	....	1	.....	9	.....
		B. N. Colver	Otol	....	1,188	....	8,894	2	7/1	9-12	116.00
San Diego County General Hospital *	San Diego, Calif.	J. J. Prendergast and C. W. Brown	OpOt	423		2,894		1	.....	9-12	.....
Children's Hospital *[4]	San Francisco	L. Abbott	OpOt	498[b]		5,779[b]		2	.....	9	.....
Green's Eye Hospital	San Francisco	M. I. Green	Oph	1,079	....	13,912	....	2	7/1	9-24	100.00
		L. Z. Fishman	Otol	....	238	....	1,474	2	.....	9	.....
San Francisco Hospital *[4]	San Francisco	.....	OpOt	423		....	....	3	Varies	9	115.00
Stanford University Hospitals *[4]	San Francisco	H. Barkan	Oph	699	....	8,455	....	3	7/1	9-18	50.00
		J. A. Bacher	Otol	....	904	....	8,112	2	7/1	9-18	50.00
University of California Hospital *[4]	San Francisco	F. C. Cordes	Oph	324	....	9,813	....	2	Varies	9-12	50.00
		W. B. Smith	Otol	....	441	....	4,141	1	Varies	9-12	50.00
Colorado General Hospital *	Denver, Colo.	.....	Oph	95	....	6,134	....	2	7/1	9-36	70.00
New Haven Hospital *[4]	New Haven, Conn.	J. Frazer	Otol	....	800	....	5,025	3	7/1	9-12	[a]
Episcopal Eye, Ear and Throat Hospital	Washington, D.C.	L. S. Greene	Oph	1,476	....	14,231	....	4	1/1	9-16	25.00
		E. G. Breeding	Otol	....	4,217	....	4,758	3	1/1	9-12	25.00
Gallinger Municipal Hospital *[4]	Washington, D.C.	.....	OpOt	435		2,941		1	7/1	9	.....
Grady Memorial Hospital *[4]	Atlanta, Ga.	G. E. Clay and W. C. Warren	OpOt	318	867	9,315	7,650	6	7/1	9	20.00
Cook County Hospital *[4]	Chicago	W. Moncreiff	Oph	499	....	4,291	....	5	1/1, 7/1	9-36	25.00
		J. Lifschutz	Otol	....	2,758	....	7,035	5	1/1, 7/1	9-36	25.00
Illinois Eye and Ear Infirmary [4]	Chicago	H. S. Gradle	Oph	1,726	....	38,203	....	18	7/1	9-36	.....
		H. S. Gradle	Otol	....	982	....	13,454	15	7/1	9-36	.....
Mercy Hospital, Loyola University Clinics *	Chicago	R. W. Kerwin	OpOt	344	1,498	205	158	1	7/1	9-18	25.00
Michael Reese Hospital *[4]	Chicago	S. J. Meyer	Oph	533	....	3,544	....	1	.....	9-36	50.00
		S. J. Pearlman	Otol	....	1,823	....	1,509	1	.....	9-36	50.00
Passavant Memorial Hospital *[4]	Chicago	.....	Oph	597	....	657	....	2	.....	9	.....
		J. F. Delph	Otol	....[a]	291	....	990	1	.....	9	.....
Presbyterian Hospital *	Chicago	E. V. L. Brown	Oph	301	....	6,104	....	2	1/1, 7/1	9	50.00
		D. B. Hayden	Otol	....	1,135	....	4,125	2	1/1, 7/1	9	50.00
Provident Hospital *[4]	Chicago	C. L. Forney	OpOt	70	323	7,395	2,160	1	1/1	9	50.00
Research and Educational Hospitals *	Chicago	H. Beard	Oph	215	....	6,282	....	2	.....	9-24	55.00
		A. R. Hollender	Otol	....	467	....	6,625	1	.....	9-24	55.00
St. Luke's Hospital *	Chicago	F. E. Brawley and H. R. Lyons	OpOt	268	626	663	1,287	3	7/1	9-36	25.00
University of Chicago Clinics *	Chicago	A. Krause	Oph	176	....	6,631	....	6	Every 9 mos	9-48	25.00
		J. R. Lindsay	Otol	....	486	....	9,099	4	Every 9 mos	9-24	25.00
Wesley Memorial Hospital *[4]	Chicago	W. A. Mann	Oph	165	....	....	....	1	1/1	9-12	25.00
Indianapolis City Hospital *	Indianapolis	B. J. Larkin	Oph	155	....	3,117	....	1	4/1	9-24	30.00
		W. F. Molt	Otol	....	584	....	2,795	1	4/1	9-24	30.00
Indiana University Medical Center *[4]	Indianapolis	R. L. Masters	Oph	235	....	2,056	....	2	.....	9-36	33.00
		C. McCaskey	Otol	....	373	....	1,163	2	.....	9-36	33.00
University Hospitals *[4]	Iowa City, Ia.	C. S. O'Brien	Oph	1,110	....	4,146	....	8	7/1	9	25.00
		D. M. Lierle	Otol	....	1,941	....	3,969	9	7/1	9	25.00
University of Kansas Hospitals *[4]	Kansas City, Kan.	S. E. Roberts	Otol	....	969	....	2,214	1	.....	9-36	50.00
Louisville General Hospital *	Louisville, Ky.	J. S. Bumgardner	OpOt	114	230	3,405	2,304	2	7/1	9	54.00
Charity Hospital of Louisiana *[4]	New Orleans, La.	.....	OpOt	1,020	1,932	11,769	13,963	18	Varies	9-36	60.00
Eye, Ear, Nose and Throat Hospital [4]	New Orleans	W. R. Buffington	Oph	....	....	16,413	....	6	.....	9-24	.....
		F. E. LeJeune	Otol	....	....	....	16,721	12	.....	9-24	.....
Touro Infirmary *	New Orleans	E. E. Allgeyer and A. J. McComiskey	OpOt	34	1,659	800	1,551	2	.....	9	50.00
Baltimore Eye, Ear and Throat Charity Hospital [4]	Baltimore	.....	OpOt	3,581		11,104	8,069	4	1/1, 7/1	9-24	10.00
Johns Hopkins Hospital *	Baltimore	A. C. Woods	Oph	1,489	....	16,088	....	10	7/1	9	.....
		S. J. Crowe	Otol	....	1,118	....	10,709	5	7/1	9	.....
University Hospital *[4]	Baltimore	C. Clapp and E. Looper	OpOt	13	1,147	4,291	2,052	1	7/1	9	75.00
Beth Israel Hospital *	Boston	.....	Otol	....	651	....	2,831	1	.....	9	.....
Boston City Hospital *[4]	Boston	J. J. Regan and E. J. Monahan	OpOt	592	1,712	18,233	12,331	2	7/1	9	50.00[c]
Lahey Clinic	Boston	.....	Otol	....	....	....	....	1	.....	9	.....
Massachusetts Eye and Ear Infirmary [4]	Boston	P. A. Chandler	Oph	2,840	....	40,707	....	8	Varies	9-24	.....
		L. A. Schall	Otol	....	3,054	....	30,676	7	Varies	9-24	.....
Memorial Hospital *	Worcester, Mass.	G. Berry	Otol	....	1,955	....	938	1	7/1	9-24	41.67
University Hospital *[4]	Ann Arbor, Mich.	F. B. Fralick	Oph	645	....	11,599	....	6	Varies	9	.....
		A. A. Furstenberg	Otol	....	770	....	10,196	4	Varies	9	100.85

Numerical and other references will be found on page 405.

12. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated [6] Oph	Inpatients Treated [6] Otol	Outpatient Visits Oph	Outpatient Visits Otol	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Months)
City of Detroit Receiving Hospital *[4]	Detroit	P. Heath and J. M. Robb	OpOt	805		11,827		4	7/1	9-18	$145.58
Grace Hospital *	Detroit	N. I. Bentley	OpOt	148	1,890	1,425	821	2	7/1	9-36	125.00
Harper Hospital *[4]	Detroit	P. Heath and J. M. Robb	OpOt	817	2,882	....	....	4	.....	9	.....
Henry Ford Hospital *[4]	Detroit	E. L. Whitney	Oph	375	....	15,047	....	3	7/1	9-36	175.00
		J. L. Dill	Otol	....	1,219	....	16,377	3	7/1	9-36	175.00
Shurly Hospital [4]	Detroit	M. J. Wainger and B. R. Shurly	OpOt	84	522	5,760	3,248	3	.....	9	.....
Eloise Hospital and Infirmary *[4]	Eloise, Mich.	R. Beattie	OpOt	287		1,099		2	7/1	9-12	160.00
Minneapolis General Hospital *[4]	Minneapolis	W. K. Haven	OpOt	381	....	2,605	1,885	2	7/1	9-18	91.50
University Hospitals *[4]	Minneapolis	E. Hanon	Oph	281	....	4,502	....	2	7/1	9-36	91.50
		L. R. Boies	Otol	....	274	....	3,600	2	7/1	9-36	91.50
Mayo Foundation	Rochester, Minn.	W. L. Benedict	Oph	(See page 405)				8	.....	9	.....
		H. I. Lillie	Otol					10	.....	9	.....
Ancker Hospital *	St. Paul	R. O. Leavenworth	OpOt	86	347	3,477	2,422	2	7/1	9-18	130.00
Charles T. Miller Hospital *	St. Paul	F. E. Burch	Oph	937	....	3,009	....	2	7/1	9	.....
Children's Mercy Hospital [4]	Kansas City, Mo.	R. J. Curdy and V. W. McCarthy	OpOt	42	310	1,469	978	1	7/1	9-24	50.00
Kansas City General Hospital *	Kansas City, Mo.	A. N. Lemoine and A. E. Eubank	OpOt	75	219	1,646	1,678	2	.....	9-24	50.00
Barnes Hospital *[4]	St. Louis	L. T. Post	Oph	1,027	....	15,381	.....	5	7/1	6-36	30.00
		T. E. Walsh	Otol	....	1,675	....	11,182	8	7/1	9-24	100.00
Homer G. Phillips Hospital *	St. Louis	W. H. Meinberg and T. Walsh	OpOt	174	305	2,431	2,258	3	1/1	9	80.00
Jewish Hospital *[4]	St. Louis	S. B. Westlake	Otol	....	129	....	661	1	.....	9	75.00
St. Louis City Hospital *[4]	St. Louis	L. T. Post	Oph	195	....	4,147	....	2	7/1	9	80.00
		A. C. Stutsman	Otol	....	521	....	2,311	2	7/1	9	80.00
St. Mary's Group of Hospitals *	St. Louis	W. H. Luedde	Oph	160	....	5,498	....	3	7/1 Every 9 mos		35.00
		W. E. Sauer	Otol	....	1,030	....	4,458	3	7/1 Every 9 mos		35.00
Jersey City Hospital *[4]	Jersey City, N. J.	F. X. Brophy and M. G. Borrone	OpOt	472	1,606	1,388	1,110	6	Varies	9-24	35.00
Newark City Hospital *	Newark, N. J.		Otol	....	....	....	....	1	.....	9	.....
Newark Eye and Ear Infirmary	Newark, N. J.	R. H. Rogers and W. M. Brien	OpOt	744	6,371	1,716	4,856	3	.....	9+	.....
Albany Hospital *[4]	Albany, N. Y.	H. K. Tebbutt Jr.	Otol	....	983	....	1,062	2	7/1	9-12	25.00
Brooklyn Eye and Ear Hospital	Brooklyn	J. N. Evans	Oph	2,126	....	40,006	....	6	.....	9	.....
		W. S. Shattuck	Otol	....	4,446	....	36,870	8	Varies	9-24	.....
Jewish Hospital *[4]	Brooklyn	E. L. Berger	Otol	....	564	....	3,476	1	.....	9-12	25.00
Kings County Hospital *[4]	Brooklyn	W. Moehle	Oph	382	....	7,871	....	2	7/1	9-18	110.00
		M. C. Myerson	Otol	....	1,181	....	5,499	3	7/1	9-18	110.00
Long Island College Hospital *[4]	Brooklyn	J. N. Evans	Oph	129	....	474	....	5	7/1	9-48	25.00
		R. L. Moorhead	Otol	....	3,804	....	2,162	2	7/1	9-24	25.00
Buffalo General Hospital *	Buffalo	J. F. Fairbairn	Otol	....	779	....	609	2	7/1	9-12	50.00
Edward J. Meyer Memorial Hospital *[4]	Buffalo	L. J. Koenig	Oph	70	....	2,311	....	3	7/1	9-36	50.00
		H. E. Bozer	Otol	....	78	....	1,502	3	7/1	9-36	50.00
Queens General Hospital *[4]	Jamaica, N. Y.	W. G. Frey Jr.	Oph	190	....	4,568	....	1	7/1	9-24	110.00
		M. S. Bender	Otol	....	716	....	2,477	2	7/1	9-24	110.00
New Rochelle Hospital *	New Rochelle, N. Y.	A. L. Beck	OpOt	....	1,262	....	1,173	2	7/1	9	100.00
Bellevue Hospital, Div. III—N. Y. Univ. *[4]	New York City	D. B. Kirby	Oph	563	....	15,742	....	6	Varies	9-24	25.00
		J. Kelly	Otol	....	2,360	....	15,531	6	Varies	9-24	25.00
Flower and Fifth Avenue Hospitals *[4]	New York City	J. A. W. Hetrick	Otol	....	187	....	1,361	2	.....	9-12	100.00
Goldwater Memorial Hospital *[4]	New York City	J. W. Smith	Oph	38	....	....	....	2	7/1	9-12	50.00
Harlem Eye and Ear Hospital	New York City		OpOt	395	1,002	15,720	13,863	3	.....	9	.....
Harlem Hospital *[4]	New York City	H. J. Burman	Otol	....	....	....	....	1	7/1	9	50.00
Manhattan Eye, Ear and Throat Hospital [4]	New York City		Oph	2,361	....	66,089	....	7	Varies	9-21	.....
			Otol	....	8,897	....	51,124	8	Varies	9-24	.....
Metropolitan Hospital *[4]	New York City	C. A. Turtz	Oph	115	....	3,555	....	1	.....	9/12	.....
		J. A. W. Hetrick	Otol	....	351	....	3,043	1	7/1	9-12	50.00
Mount Sinai Hospital *[4]	New York City		Oph	....	....	....	....	2	7/1	9-24	50.00
			Otol	....	....	....	....	2	7/1	9-24	50.00
New York City Hospital *	New York City	H. B. Judd	Otol	....	452	....	2,742	1	7/1	9	110.00
New York Eye and Ear Infirmary [4]	New York City		Oph	2,850	....	52,222	....	12	1/1, 4/1	9-24	.....
			Otol	....	3,013	....	30,709	12	7/1, 10/1	9-24	.....
New York Polyclinic Medical School and Hospital *	New York City		OpOt	170	1,358	3,597	7,938	4	7/1	9	25.00
New York Post-Graduate Medical School and Hospital *	New York City	J. W. White	Oph	291	....	6,956	....	3	1/1, 7/1	9-24	15.00
		A. Nilsen	Otol	....	660	....	7,394	4	1/1	9-24	15.00
Presbyterian Hospital *[4]	New York City	J. M. Dunnington	Oph	2,600	....	27,785	....	6	.....	9	.....
		J. D. Kernan	Otol	....	1,802	....	20,348	6	.....	9+	.....
Roosevelt Hospital *	New York City	C. N. Harper	Otol	....	671	....	3,134	2	.....	9-24	.....
St. Luke's Hospital *	New York City	W. G. Frey	Oph	143	....	8,244	....	1	Varies	9-18	50.00
		J. W. Fowlkes	Otol	....	1,093	....	7,474	3	Varies	9-36	50.00
Rochester General Hospital *[4]	Rochester, N. Y.	E. W. Kennedy and C. S. Nash	OpOt	111	865	714	2,570	2	.....	9-36	75.00
Strong Memorial and Rochester Municipal Hospitals *[4]	Rochester, N. Y.	J. F. Gipner	Oph	329	....	5,248	....	2	7/1	9-24	66.66
		C. A. Heatly	Otol	....	1,263	....	4,270	2	7/1	9-24	41.66
Sea View Hospital [4]	Staten Island, N. Y.	M. C. Myerson	Otol	....	2,633	....	....	2	1/1, 7/1	9	110.00
Syracuse University Medical Center *	Syracuse, N. Y.	M. G. Brown	Otol	....	1,874[b]	....	3,402[b]	1	.....	9	.....
Grasslands Hospital *[4]	Valhalla, N. Y.	L. D. Redway	Oph	72	....	3,820	....	2	.....	9	75.00
		M. T. Smith	Otol	....	258	....	1,710	2	.....	9	75.00
Duke Hospital *[4]	Durham, N. C.	W. B. Anderson and W. W. Eagle	OpOt	297	567	3,416	4,176	10	Every 9 mos	9	83.33
Cincinnati General Hospital *	Cincinnati		Oph	205	....	4,712	....	2	7/1	9-24	.....
			Otol	....	812	....	3,260	2	7/1	9-24	.....
City Hospital *[4]	Cleveland	G. L. Miller	Oph	161	....	2,464	....	1	.....	9	75.00
		C. W. Engler	Otol	....	249	....	1,419	2	.....	9	75.00
Cleveland Clinic Foundation Hospital *	Cleveland	P. Moore	Otol	....	540	....	....	4	.....	9+	100.00
St. Luke's Hospital *	Cleveland	T. W. Thoburn	Otol	....	1,559	....	1,091	2	7/1	9-48	50.00
University Hospitals *[4]	Cleveland	A. B. Bruner	Oph	666[b]	....	4,531[b]	....	2	.....	9	.....
		C. Pitkin	Otol	....	1,500[b]	....	4,397[b]	2	7/1	9	.....
Starling-Loving University Hospital *[4]	Columbus, Ohio	A. D. Frost	Oph	207	....	1,830	....	2	7/1	9-12	50.00
		H. C. Beatty	Otol	....	301	....	1,100	2	7/1	9-12	50.00
University Hospitals *	Oklahoma City, Okla.	L. Westfall and T. G. Wails	OpOt	242	403	2,712	2,119	2	9/1	9-18	75.00
University of Oregon Medical School Hospitals and Clinics *[4]	Portland, Ore.	F. A. Kiehle	Oph	100	....	3,543	....	2	7/1	9	.....
		R. Fenton	Otol	....	345	....	3,002	2	7/1	9	75.00
George F. Geisinger Memorial Hospital *[4]	Danville, Pa.	C. H. Jacobs	Oph	187	....	6,182	....	1	7/1	9	75.00
		F. W. Davison	Otol	....	727	....	7,233	1	7/1	9	75.00

Numerical and other references will be found on page 405.

12. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated [6] Oph	Inpatients Treated [6] Otol	Outpatient Visits Oph	Outpatient Visits Otol	Asst. Res. and Residencies [5]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	E. Spaeth	Oph	353	....	3,358	....	1	7/1	9-24	.....
		R. Butler	Otol	....	1,601	....	3,961	3	7/1	9-24	.....
Hosp. of the Protestant Episcopal Church ★[4]	Philadelphia	O. C. Hirst	Otol	....	570[b]	....	2,615[b]	1	.....	9	.....
Hospital of the Univ. of Pennsylvania ★[4]	Philadelphia	F. H. Adler	Oph	573	....	5,317	....	5	7/1	9-36	.....
Jefferson Medical College Hospital ★	Philadelphia	H. J. Williams and L. H. Clerf	Otol	....	1,472	....	8,565	1	1/1	9	$25.00
Philadelphia General Hospital ★[4]	Philadelphia		Oph	119	....	....	....	1	Varies	9	93.33
Temple University Hospital ★[4]	Philadelphia		Oph	299	....	3,306	....	3	7/1	9-36	52.00
			Otol	....	394	....	1,650	3	7/1	9-36	52.00
Wills Hospital [4]	Philadelphia	F. C. Parker	Oph	4,008	....	28,370	....	9	Varies	9-18	.....
Eye, Ear, Nose and Throat Hospital [4]	Pittsburgh	W. E. Carson and J. H. McCready	OpOt	4,229		10,522		4	1/1, 7/1	9-18	40.00
Mercy Hospital ★[4]	Pittsburgh	W. L. Allison	Otol	....	1,453	....	....	1	7/1	9-36	.....
Knoxville General Hospital ★	Knoxville, Tenn.		OpOt	40	358	....	559	1	.....	9	.....
Memphis Eye, Ear, Nose and Throat Hosp.	Memphis, Tenn.	E. C. Ellett and L. Levy	OpOt	3,175		7,208		4	1/1	9-18	25.00
Nashville General Hospital ★[4]	Nashville, Tenn.	J. Gordon Jr.	OpOt	324		3,416		1	.....	9	.....
Vanderbilt University Hospital ★[4]	Nashville, Tenn.		Otol	....	....	....	....	1	.....	9	.....
Parkland Hospital ★[4]	Dallas, Tex.	G. Jones and J. D. Singleton	OpOt	....	....	....	....	1	.....	9	50.00
John Sealy Hospital ★[4]	Galveston	M. Robison	Otol	....	462	....	2,611	2	Varies	9	50.00
Jefferson Davis Hospital ★[4]	Houston, Tex.	R. Daily	Oph	284	....	2,427	....	1	3/1	9	50.00
		J. F. Gamble	Otol	....	402	....	721	1	7/1	9	50.00
University of Virginia Hospital ★[4]	Charlottesville, Va.	E. Burton and F. D. Woodward	OpOt	187	1,067	3,083	3,126	11	1/1	9	25.00
Medical College of Virginia, Hosp. Div. ★[4]	Richmond, Va.	R. H. Courtney and P. Pastore	OpOt	251	767	4,471	3,384	4	7/1	9	37.50
Gill Mem. Eye, Ear and Throat Hospital [4]	Roanoke, Va.	E. G. Gill	OpOt	158	735	6,801	7,410	2	.....	9-24	150.00
King County Hospital ★	Seattle	A. G. Hanson and J. A. Weber	OpOt	....	537	677	1,829	2	.....	9	.....
State of Wisconsin General Hospital ★[4]	Madison	F. A. Davis and W. Nesbit	OpOt	804	634	2,337	....	4	1/1, 7/1	9-36	25.00
Milwaukee County Hospital ★[4]	Milwaukee	T. F. McCormick and W. E. Grove	OpOt	1,099	833	3,356	1,317	4	7/1	9-36	65.32

Hospitals, 124; Assistant Residencies and Residencies, 579

13. ORTHOPEDIC SURGERY

The following services are approved by the Council and the American Board of Orthopedic Surgery
(See footnotes 1, 2 and 3)

Navy Hospitals

U. S. Naval Hospital ★[1] ..... Bethesda, Md.

U. S. Naval Hospital ★[1] ..... Philadelphia

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [5]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Jefferson and Hillman Hospitals ★[1]	Birmingham, Ala.	J. D. Sherrill	358	2,383	30	2	2	Varies	9-12	$50.00
Children's Hospital [1,4]	Los Angeles	J. Wilson	292	3,185	1	1	1	7/1	9	100.00
Los Angeles County Hospital ★[2,4]	Los Angeles	A. E. Gallant	3,527	22,508	188	17	5	Varies	9-24	157.20
Orthopaedic Hospital [1]	Los Angeles	C. L. Lowman	1,959	25,507	1	..	3	7/1	9-18	50.00
White Memorial Hospital ★[2]	Los Angeles	G. M. Taylor	472	4,505	7	..	1	.....	9	.....
Children's Hospital ★[1,4]	San Francisco	L. Abbott	...	.....	..	..	2	.....	9	.....
Franklin Hospital ★[1,4]	San Francisco	L. C. Abbott and F. C. Bost	1,262	.....	12	10	4	7/1	9-12	100.00
San Francisco Hospital ★[2,4]	San Francisco	F. C. Bost	151	.....	4	0	1	.....	9	115.00
Shriners Hospital for Crippled Children [1,4]	San Francisco	F. C. Bost	183	1,775	0	..	2	.....	9	100.00
University of California Hospital ★[2,4]	San Francisco	L. C. Abbott	237	6,722	1	..	2	Varies	9-12	50.00
Childrens Hospital [1]	Denver	A. Thomas	386	.....	1	1	2	7/1	9-36	100.00
New Haven Hospital ★[1,4]	New Haven, Conn.	M. Eveleth	490	4,488	14	..	3	7/1	9-12	[a]
Newington Home for Crippled Children [1]	Newington, Conn.	R. M. Yergason	168	20,177	0	..	2	Varies	9-24	.....
Alfred I. du Pont Institute of The Nemours Foundation [1]	Wilmington, Del.	A. R. Shands	114	1,670	0	..	1	7/1	9-24	50.00
Central Dispensary and Emergency Hosp. ★[1,4]	Washington, D. C.	G. W. Leadbetter	1,083	1,339	19	1	3	4/1	9-12	10.00
Freedmen's Hospital ★[3,4]	Washington, D. C.	J. Neviaser	230	2,447	9	1	1	.....	9	.....
Gallinger Municipal Hospital ★[1,4]	Washington, D. C.		429	2,574	18	1	2	7/1	9	.....
Scottish Rite Hosp. for Crippled Children [1]	Decatur, Ga.	J. H. Kite	234	2,333	2	0	1	.....	9	.....
Georgia Warm Springs Foundation [1]	Warm Springs, Ga.	C. E. Irwin	543	.....	0	..	2	.....	9	.....
Children's Memorial Hospital [1,4]	Chicago	E. L. Compere	...	2,104	2	1	2	7/1	9-12	75.00
Cook County Hospital ★[2,4]	Chicago	E. J. Berkheiser	567	3,398	15	0	3	1/1, 7/1	9-36	25.00
Michael Reese Hospital ★[2,4]	Chicago	D. H. Levinthal	522	1,616	5	3	4	.....	9-36	25.00
Research and Educational Hospitals ★[2]	Chicago	F. A. Chandler	493	12,249	6	4	3	.....	9-36	55.00
St. Luke's Hospital ★[1]	Chicago	F. A. Chandler	622	1,184	6	4	2	7/1	9-36	25.00
Shriners Hospital for Crippled Children [1,4]	Chicago	M. A. Page	226	2,551	0	..	3	7/1	9-12	75.00
University of Chicago Clinics ★[2,4]	Chicago	C. H. Hatcher	515	5,583	5	4	5	Varies	9-36	25.00
Wesley Memorial Hospital ★[2,4]	Chicago	E. L. Compere	1,506	.....	11	7	2	1/1	9-12	25.00
Indiana University Medical Center ★[2,4]	Indianapolis	L. A. Ensminger	1,065	5,836	13	2	3	.....	9-36	33.00
University Hospitals ★[2,4]	Iowa City	A. Steindler	3,409	5,169	11	3	10	7/1	9	25.00
St. Francis Hospital ★[1]	Wichita, Kan.	C. Rombold	948	1,000	7	2	1	Varies	9	150.00
Kosair Crippled Children's Hospital [1]	Louisville, Ky.	W. B. Owen	739	3,223	7	3	3	1/1	9-18	50.00
Louisville General Hospital ★[2]	Louisville, Ky.	W. B. Owen	838	6,313	55	5	1	7/1	9	54.00
Charity Hospital of Louisiana ★[1]	New Orleans		(See units below)							
Louisiana State University Unit ★[2]	New Orleans	H. T. Simon	585	4,580	32	4	6	Varies	9-36	60.00
Tulane University Unit ★[2]	New Orleans	G. A. Caldwell	579	4,533	21	1	6	Varies	9-36	60.00
Independent Unit ★[1]	New Orleans		595	3,445	25	1	6	Varies	9-36	60.00
Shriners Hospital for Crippled Children [1]	Shreveport, La.	H. A. Durham	106	971	0	..	2	Varies	9-24	150.00
James Lawrence Kernan Hospital for Crippled Children [1]	Baltimore	A. F. Voshell	304	3,372	2	0	2	7/1	9-12	92.00
Johns Hopkins Hospital ★[2]	Baltimore	G. E. Bennett	587	11,021	10	2	4	7/1	9-48	.....
Boston City Hospital ★[2,4]	Boston	O. J. Hermann	1,289	12,769	37	..	2	7/1	9	50.00[c]
Children's Hospital ★[1,4]	Boston	F. R. Ober	438	10,147	0	..	1	.....	9	.....
Lahey Clinic [2]	Boston		....	.....	..	..	4	.....	9	.....
Massachusetts General Hospital ★[2]	Boston	M. N. Smith-Peterson	405[b]	9,674[b]	..	..	1	.....	9	.....
Shriners Hospital for Crippled Children [1,4]	Springfield, Mass.	G. deN. Hough	261	2,498	1	0	3	.....	9-12	50.00

Numerical and other references will be found on page 405.

13. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
University Hospital ★[3,4]	Ann Arbor, Mich.	C. E. Badgley	1,316	8,361	5	5	6	Varies	9	$100.85
Henry Ford Hospital ★[3,4]	Detroit	C. L. Mitchell	1,279	14,932	6	2	3	7/1	9-36	175.00
Mayo Foundation [3]	Rochester, Minn.	M. S. Henderson and R. K. Ghormley	(See page 405)				16	.....	9	.....
Gillette State Hospital for Crippled Children [1,4]	St. Paul	C. C. Chatterton	746	6,760	10	8	5	1/1, 7/1	9-12	91.50
Kansas City General Hospital ★[2]	Kansas City, Mo.	H. L. Hess	585	2,994	74	62	2	7/1	9-24	50.00
St. Luke's Hospital ★[1]	Kansas City, Mo.		744	9,247	14	5	1	.....	9	.....
St. Mary's Group of Hospitals ★[3]	St. Louis	A. O'Reilly	539	4,236	18	2	3	7/1	9	35.00
Shriners Hospital for Crippled Children [1]	St. Louis	R. D. Heath	...	.....	..	..	1	.....	9-18	.....
Nebraska Orthopedic Hospital [1,4]	Lincoln	H. W. Orr	367	.....	11	..	1	7/1	9-24	125.00
University of Nebraska Hospital ★[1]	Omaha	R. D. Shrock	234	1,199	2	2	1	7/1	9-36	50.00
Jersey City Hospital ★[1,4]	Jersey City, N. J.	S. B. Sprague	874	7,225	5	0	6	Varies	9-24	35.00
Hospital and Home for Crippled Children [1]	Newark, N. J.	A. H. Stahl	287	.....	2	0	1	.....	9	.....
New Jersey Orthopedic Hospital and Disp.	Orange, N. J.	H. W. Smith	707	17,553	9	0	3	.....	9-18	90.00
Kings County Hospital ★[3]	Brooklyn	J. B. L'Episcopo	443	8,452	8	2	3	7/1	9-18	60.00
Long Island College Hospital ★[3,4]	Brooklyn	J. B. L'Episcopo	224	7,773	2	..	3	7/1	9-36	25.00
Buffalo General Hospital ★[2]	Buffalo	F. N. Potts	572	364	21	4	3	7/1	9	.....
Edward J. Meyer Memorial Hospital ★[3,4]	Buffalo	A. A. Gartner	104	811	1	0	1	.....	9-36	50.00
Bellevue Hospital, Div. IV—Open Div. ★[2,4]	New York City	A. Krida	286	6,686	7	1	4	Varies	9	25.00
Hospital for Joint Diseases ★[2,4]	New York City		2,546	30,752	23	5	12	Varies	9-36	40.00
Hospital for Special Surgery [2]	New York City	P. D. Wilson	1,361	22,923	5	2	10	Varies	9-24	50.00
Metropolitan Hospital ★[1,4]	New York City	M. J. Wilson	594	2,065	53	2	1	7/1	9-24	100.00
Mount Sinai Hospital ★[2,4]	New York City	K. Lippmann	...	.....	..	..	2	7/1	9-24	50.00
New York Orthopaedic Disp. and Hospital [3]	New York City	A. DeF. Smith	1,135	.....	6	1	15	Varies	9-36	100.00
St. Luke's Hospital ★[2]	New York City	D. M. Bosworth	513	3,176	13	1	2	Varies	9-36	50.00
Strong Memorial and Rochester Municipal Hospitals ★[2,4]	Rochester, N. Y.	R. P. Schwartz	541	4,221	..	..	2	7/1	9-24	41.66
Sea View Hospital [1,4]	Staten Island, N. Y.	D. M. Bosworth	155	.....	16	1	2	1/1, 7/1	9	110.00
New York State Reconstruction Home [1]	W. Haverstraw, N. Y.	H. Hallock	251	493	0	..	3	1/1, 7/1	9-24	100.00
Duke Hospital ★[2,4,13]	Durham, N. C.	L. D. Baker	846	8,187	5	3	5	Every 9 mo	9	83.33
Cincinnati General Hospital ★[2]	Cincinnati	J. Freiberg	238	2,252	5	1	4	7/1	9-24	.....
Cleveland Clinic Foundation Hospital ★[2]	Cleveland	J. Dickson	486	.....	..	..	5	.....	9	100.00
Mount Sinai Hospital ★[1,4]	Cleveland	R. Reich	640	1,262	15	2	1	7/1	9-12	100.00
University Hospitals ★[2,4]	Cleveland	M. Harbin	561	3,479	4	2	1	7/1	9	25.00
St. Vincent's Hospital ★[1,4]	Toledo, O.	B. J. Hein	825	3,093	4	0	1	.....	9	.....
Bone and Joint Hospital-McBride Clinic [1]	Oklahoma City	E. D. McBride	1,101	.....	..	..	2	.....	9-24	250.00
St. Anthony Hospital ★[1]	Oklahoma City	W. K. West	1,033	.....	..	..	1	.....	9	75.00
University Hospitals ★[3]	Oklahoma City	W. K. West	900	7,419	24	7	6	4/1	9-27	75.00
Mercy Hospital for Crippled Children [1]	Tulsa, Okla.		...	.....	..	..	1	.....	9	.....
Emanuel Hospital ★[1,4]	Portland, Ore.	L. S. Lucas	1,438	.....	26	11	2	7/1	9-24	75.00
Shriners Hospital for Crippled Children [1]	Portland, Ore.	L. S. Lucas	200	.....	..	..	1	.....	9	.....
University of Oregon Medical School Hospitals and Clinics ★[2,4]	Portland, Ore.	L. S. Lucas	412	3,438	25	11	3	7/1	9-18	75.00
State Hospital for Crippled Children [1]	Elizabethtown, Pa.	T. Outland	265	907	0	..	4	7/1	9-24	161.00
Hosp. of the University of Pennsylvania ★[2,4]	Philadelphia	P. C. Colonna	720	5,387	6	4	3	7/1	9-36	.....
Shriners Hospital for Crippled Children [1,4]	Philadelphia	J. R. Moore	175	2,288	0	..	3	1/1	9-24	50.00
Temple University Hospital ★[2,4]	Philadelphia	J. R. Moore	551	2,784	9	1	3	7/1	9-36	52.00
Robert Packer Hospital ★[1]	Sayre, Pa.	P. H. Harmon	1,107	3,645	15	6	2	7/1	9-36	125.00
Roper Hospital ★[2]	Charleston, S. C.	F. A. Hoshall	385	2,197	2	1	3	7/1	9-27	50.00
Shriners Hospital for Crippled Children [1]	Greenville, S. C.	J. W. White	364	2,075	1	..	2	7/1	9-24	50.00
Willis C. Campbell Clinic [3]	Memphis, Tenn.	J. S. Speed	1,443	11,370	15	0	10	1/1, 7/1	9-36	50.00
Parkland Hospital ★[1,4]	Dallas, Tex.	S. Driver	...	.....	..	..	1	.....	9	50.00
Texas Scottish Rite Hospital for Crippled Children [1]	Dallas, Tex.	B. Carrell	629	3,436	2	1	3	1/1, 7/1	9	.....
University of Virginia Hospital ★[2,4]	Charlottesville	R. V. Funsten	554	3,809	4	1	9	7/1	9	83.00
Children's Orthopedic Hospital [1,4]	Seattle	H. E. Coe	472[b]	2,714[b]	..	..	1	.....	9	200.00
State of Wisconsin General Hospital ★[3,4]	Madison	R. E. Burns	1,538	3,436	16	6	6	1/1, 7/1	9-36	25.00
Milwaukee County Hospital ★[1,4]	Milwaukee	C. C. Schneider	2,132	2,196	54	3	3	7/1	9-36	65.32

Hospitals, 95; Assistant Residencies and Residencies, 320

14. PATHOLOGY

Navy Hospital
U. S. Naval Hospital,* Philadelphia

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Jefferson and Hillman Hospitals ★	Birmingham, Ala.	A. E. Caseb and J. A. Cunningham	15,062	.....	1,450	31	3	1/1, 7/1	9-12	$50.00
Cedars of Lebanon Hospital ★[1]	Los Angeles	R. Straus	11,034	5,332	.....	41	1	7/1	9	100.00
Children's Hospital [4]	Los Angeles	R. E. Knutti	4,453	295	262	82	1	.....	9	.....
Hospital of Good Samaritan ★[1]	Los Angeles	R. W. Hammack	10,695	.....	.....	26	1	.....	9	.....
Los Angeles County Hospital ★[1]	Los Angeles	E. M. Butt	45,434	6,000	5,400	38	3	Varies	9-36	157.20
St. Vincent's Hospital ★	Los Angeles	R. Shoemaker	13,181	3,623	1,924	39	1	.....	9	.....
White Memorial Hospital ★	Los Angeles	O. B. Pratt	10,155	5,062	3,161	43	1	7/1	9-12	116.00
Highland-Alameda County Hospital ★[4]	Oakland, Calif.	G. Moore	6,906	1,912	1,912	17	2	7/1	9	80.00
Collis P. and Howard Huntington Memorial Hospital ★	Pasadena, Calif.	A. G. Foord	8,435	3,130	1,885	51	1	8/1	9-12	150.00
French Hospital ★[4]	San Francisco	W. T. Cummins	5,031	.....	.....	22	1	.....	9	.....
Mount Zion Hospital ★[4]	San Francisco	G. R. Biskind	5,333	2,032	1,070	45	2	.....	9-18	75.00
San Francisco Hospital ★[4]	San Francisco		14,008	2,000	2,000	33	3	Varies	9	115.00
Stanford University Hospitals ★[1]	San Francisco	A. J. Cox	9,710	1,604	1,604	36	1	7/1	9	50.00
University of California Hospital ★[4]	San Francisco	J. F. Rinehart	7,761	2,817	2,817	79	1	Varies	9-12	50.00
Santa Clara County Hospital ★	San Jose, Calif.	F. Proescher	4,682	381	261	17	1	.....	9	.....
Santa Barbara Cottage Hospital ★	Santa Barbara, Calif.	W. V. Knoll	4,296	1,060	1,060	52	1	.....	9	.....
Denver General Hospital ★	Denver	W. W. Williams	9,493	1,141	896	35	1	.....	9-12	50.00
Hartford Hospital ★	Hartford, Conn.	R. E. Kendall	21,513	.....	.....	34	3	.....	9-36	50.00
St. Francis Hospital ★	Hartford, Conn.	L. P. Hastings	15,336	3,400	3,000	18	1	.....	9	.....
New Britain General Hospital ★	New Britain, Conn.	P. D. Rosahn	7,200	3,139	2,856	15	1	.....	9	.....
New Haven Hospital ★[4]	New Haven, Conn.	W. C. Winternitz	10,858	2,920	2,872	69	5	.....	9	[a]
Children's Hospital [4]	Washington, D. C.	E. C. Rice	6,512	223	43	81	1	.....	9	.....
Gallinger Municipal Hospital ★[4]	Washington, D. C.	H. V. Connerty	16,573	1,547	1,547	47	1	.....	9	.....
Garfield Memorial Hospital ★[4]	Washington, D. C.	J. W. Lindsay	9,246	1,037	763	54	1	.....	9	75.00
Georgetown University Hospital ★	Washington, D. C.	V. J. Dardinski	6,539	1,381	637	38	5	7/1	9-24	75.00

Numerical and other references will be found on page 405.

14. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[a]	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies[a]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
George Washington University Hospital ★..	Washington, D. C.....	R. M. Choisser.....	2,820	578	578	61	3	.....	9	.....
Sibley Memorial Hospital ★.....	Washington, D. C.....	O. B. Hunter.....	10,561	3,745	3,485	51	1	.....	9-12	$100.00
Grady Memorial Hospital ★[4].....	Atlanta, Ga.....	W. H. Sheldon.....	13,152	1,899	1,899	33	3	7/1	9	20.00
University Hospital ★[4]	Augusta, Ga.....	E. R. Pund.....	10,453	3,690	2,460	12	2	.....	9	.....
Emory University Hospital ★.....	Emory University, Ga.	.....	8,064	1,778	1,778	41	1	7/1	9-12	50.00
Children's Memorial Hospital [4].....	Chicago.....	J. S. Simonds.....	3,277	151	150	78	1	.....	9-12	79.17
Cook County Hospital ★[4].....	Chicago.....	H. Popper	53,137	5,075	4,093	21	23	.....	9	.....
Michael Reese Hospital ★[4].....	Chicago.....	O. Saphir	14,944	3,648	3,648	56	6	.....	9	.....
Mount Sinai Hospital ★[4].....	Chicago.....	I. Davidsohn	7,835	3,619	2,572	33	2	7/1	9	50.00
Passavant Memorial Hospital ★[4].....	Chicago.....	E. Hildebrand Jr.....	7,617	865	.....	66	1	.....	9	.....
Presbyterian Hospital ★	Chicago.....	G. J. Rukstinat.....	11,941	3,475	3,475	63	2	1/1, 7/1	9-36	50.00
Provident Hospital ★[4]	Chicago.....	J. H. Lewis.....	4,868	1,014	1,014	50	1	1/1	9	50.00
Research and Educational Hospitals ★.....	Chicago.....	G. A. Bennett.....	4,757	1,423	1,423	93	3	.....	9-36	55.00
St. Luke's Hospital ★[4].....	Chicago.....	E. F. Hirsch.....	14,158	5,350	4,800	67	5	7/1	9-36	25.00
University of Chicago Clinics ★.....	Chicago.....	P. R. Cannon.....	11,328	2,166	2,088	73	5	Varies	9-36	25.00
Wesley Memorial Hospital ★[4].....	Chicago.....	E. R. Strauser.....	12,607	3,456	3,181	56	1	Varies	9-36	.....
Evanston Hospital ★	Evanston, Ill.....	J. McCarter	7,828	3,159	1,492	82	1	8/1	9	100.00
St. Francis Hospital ★.....	Evanston, Ill.....	L. F. Bleyer.....	9,432	1,771	1,640	17	1	.....	9-12	75.00
Methodist Hospital of Central Illinois ★[4]...	Peoria, Ill.....	R. H. Fuller.....	5,658	2,426	1,741	69	1	7/1	9	175.00
St. Francis Hospital ★[4].....	Peoria, Ill.....	E. J. Kraus.....	13,462	4,158	4,158	38	1	5/1	9-36	150.00
Indianapolis City Hospital ★.....	Indianapolis.....	A. Nettleship	9,572	1,672	1,580	28	2	4/1	9-24	30.00
Indiana University Medical Center ★[4].....	Indianapolis.....	C. G. Culbertson.....	9,246	2,522	2,522	46	4	.....	9-12	33.00
Methodist Hospital ★	Indianapolis.....	L. A. Hoyt.....	20,085	6,033	6,033	29	2	.....	9	.....
Ball Memorial Hospital ★[4].....	Muncie, Ind.....	L. G. Montgomery.....	6,744	3,773	3,388	37	1	7/1	9-18	150.00
Memorial Hospital ★[11]	South Bend, Ind.....	A. S. Giordano.....	9,034	1,399	813	24	1	.....	9	.....
University Hospitals ★[4]	Iowa City.....	H. P. Smith.....	16,977	.....	.....	42	3	7/1	9	25.00
University of Kansas Hospitals ★[4].....	Kansas City, Kan.....	H. R. Wahl.....	7,606	4,519	1,329	49	2	.....	9-36	50.00
St. Francis Hospital ★.....	Wichita, Kan.....	C. A. Hellwig.....	14,696	5,832	5,832	42	1	6/1	9-18	150.00
Louisville General Hospital ★.....	Louisville, Ky.....	A. J. Miller.....	9,971	1,416	1,393	24	2	.....	9	.....
Charity Hospital of Louisiana ★[4].....	New Orleans.....	E. Moss	37,712	7,696	7,696	36	6	Varies	9-48	60.00
Touro Infirmary ★	New Orleans.....	J. Schenken	13,009	3,720	3,720	61	2	.....	9	50.00
U. S. Marine Hospital ★.....	New Orleans.....	C. H. Binford.....	7,258	.....	.....	70	1	.....	9	150.00
Shreveport Charity Hospital ★.....	Shreveport, La.....	W. R. Mathews.....	12,172	3,078	3,078	50	2	7/1	9-36	60.00
Maine General Hospital ★.....	Portland, Me.....	J. E. Porter.....	9,086	2,270	2,270	34	2	6/1	9-24	75.00
Baltimore City Hospitals ★.....	Baltimore.....	F. B. Kindell.....	4,404	465	465	39	4	4/1	9-12	40.00
Johns Hopkins Hospital ★.....	Baltimore.....	A. Rich	18,214	2,820	2,820	67	5	7/1	9	.....
Sinai Hospital ★[4]	Baltimore.....	T. Weinberg	6,083	1,970	1,970	51	2	7/1	9-12	35.00
University Hospital [4]	Baltimore.....	H. R. Spencer.....	10,025	4,036	4,036	62	2	.....	9	.....
Beverly Hospital ★	Beverly, Mass.....	D. A. Nickerson and I. Stergus	3,880	.....	.....	68	1	.....	9	.....
Boston City Hospital ★[4].....	Boston.....	F. Parker Jr.....	35,559	3,911	3,911	22	5	7/1	9	50.00[c]
Boston Lying-In Hospital [4].....	Boston.....	A. T. Hertig.....	3,040	302	302	42	1	1/1	9	50.00
Children's Hospital ★[4]	Boston.....	S. B. Wolbach.....	5,746	613	613	93	1	.....	9	.....
Massachusetts General Hospital ★.....	Boston.....	T. B. Mallory.....	7,910[b]	8,211[b]	8,211[b]	..	3	.....	9	.....
Massachusetts Memorial Hospitals ★.....	Boston.....	C. F. Branch.....	8,248	1,691	1,691	72	1	7/1	9	.....
New England Deaconess Hospital.....	Boston.....	S. Warren	7,566	.....	.....	48	2	10/1	9	.....
Peter Bent Brigham Hospital ★.....	Boston.....	S. B. Wolbach.....	4,668	1,400	1,400	75	2	.....	9	.....
Salem Hospital ★	Salem, Mass.....	D. A. Nickerson.....	5,520	1,399	1,399	35	1	.....	9	.....
Pondville Hospital	Walpole, Mass.....	.....	.763	953	953	88	2	Varies	9	177.00
Worcester City Hospital ★[4].....	Worcester, Mass.....	R. H. Goodale.....	8,890	2,941	2,604	17	2	7/1	9	125.00
Worcester State Hospital [4].....	Worcester, Mass.....	W. Freeman	757	153	153	28	1	.....	9	.....
University Hospital ★[4]	Ann Arbor, Mich.....	C. V. Weller.....	14,282	5,763	5,763	64	1	Varies	9	100.85
City of Detroit Receiving Hospital ★[4].....	Detroit.....	B. A. Stofer.....	17,540	2,009	2,009	41	2	.....	9	.....
Harper Hospital ★[4]	Detroit.....	P. F. Morse.....	18,974	6,906	6,906	44	2	.....	9	.....
Henry Ford Hospital ★[4].....	Detroit.....	F. W. Hartman.....	17,307	4,687	4,687	56	4	7/1	9-36	175.00
Providence Hospital ★	Detroit.....	D. H. Kaump.....	13,129	3,889	3,889	67	1	.....	9	.....
Woman's Hospital ★[4]	Detroit.....	D. C. Beaver.....	7,349	3,455	3,267	89	1	.....	9	.....
Eloise Hospital and Infirmary ★[4].....	Eloise, Mich.....	S. E. Gould.....	5,447	1,661	1,661	25	3	.....	9	.....
Hurley Hospital ★	Flint, Mich.....	J. L. Haymond.....	11,913	4,739	4,739	33	1	7/1	9	125.00
St. Luke's Hospital ★.....	Duluth, Minn.....	A. H. Wells.....	8,393	.....	.....	70	1	.....	9	.....
St. Mary's Hospital ★.....	Duluth, Minn.....	G. I. Berdez.....	9,588	.....	1,233	67	1	.....	9	.....
Mayo Foundation	Rochester, Minn.....	H. E. Robertson.....	(See page 405)				12	.....	9	.....
Ancker Hospital ★	St. Paul.....	J. F. Noble.....	6,511	612	532	72	1	7/1	9	130.00
St. Louis County Hospital ★.....	Clayton, Mo.....	H. N. Allen.....	2,569	723	512	40	1	7/1	9+	200.00
Kansas City General Hospital ★.....	Kansas City, Mo.....	A. E. Upsher.....	8,111	682	675	68	2	7/1	9	50.00
Research Hospital ★	Kansas City, Mo.....	H. K. B. Allebach.....	6,405	2,382	2,188	44	2	1/1, 10/1	9-36	100.00
St. Joseph Hospital ★[4].....	Kansas City, Mo.....	L. Sherwood	9,227	4,098	2,650	32	1	5/1	9	75.00
St. Luke's Hospital ★.....	Kansas City, Mo.....	M. L. Jones.....	6,761	4,050	2,700	54	1	.....	9	.....
Barnes Hospital ★[4]	St. Louis.....	R. A. Moore.....	14,576	2,983	2,983	66	2	.....	9	.....
Homer G. Phillips Hospital ★.....	St. Louis.....	S. H. Gray.....	10,070	1,076	860	23	1	1/1	9	80.00
Jewish Hospital ★[4]	St. Louis.....	S. H. Gray.....	6,704	1,573	1,525	32	1	.....	9	.....
St. Louis City Hospital ★[4].....	St. Louis.....	S. H. Gray.....	14,098	2,184	2,184	50	3	7/1	9	80.00
Creighton Memorial St. Joseph's Hospital ★	Omaha.....	C. R. Russum.....	11,812	10,581	7,935	45	1	.....	9	.....
University of Nebraska Hospital ★.....	Omaha.....	J. P. Tollman.....	2,799	851	851	93	1	.....	9	.....
Mary Hitchcock Memorial Hospital ★.....	Hanover, N. H.....	R. E. Miller.....	4,725	.....	.....	79	2	.....	9	.....
Atlantic City Hospital ★.....	Atlantic City, N. J....	F. Konzelmann	5,898	.....	.....	20	1	.....	9	.....
Jersey City Hospital ★[4].....	Jersey City, N. J.....	A. Gnassi	20,191	2,630	2,630	17	1	Varies	9-24	35.00
Newark Beth Israel Hospital ★[4].....	Newark, N. J.....	L. Goldman	10,884	3,277	3,277	26	2	7/1	9-24	25.00
Albany Hospital ★[4]	Albany, N. Y.....	A. W. Wright.....	12,805	5,877	5,877	54	3	.....	9	.....
Bender Hygienic Laboratory.....	Albany, N. Y.....	J. J. Clemmer.....	.....	.....	.....	..	4	.....	9	.....
Brooklyn Hospital ★	Brooklyn.....	J. A. de Veer and J. E. Hall.....	7,757	2,131	2,107	39	1	.....	9	.....
Cumberland Hospital ★[4]	Brooklyn.....	S. H. Polayes.....	5,790	898	898	43	2	7/1	9-12	50.00
Israel-Zion Hospital ★[4]	Brooklyn.....	J. M. Ravid.....	9,867	2,164	2,131	35	1	1/1, 10/1	9-18	125.00
Jewish Hospital ★[4]	Brooklyn.....	M. Lederer	12,525	4,375	4,045	31	3	7/1, 10/1	9-12	25.00
Kings County Hospital ★[4].....	Brooklyn.....	C. G. Burns.....	44,265	8,677	8,620	16	5	.....	9	.....
Long Island College Hospital ★[4].....	Brooklyn.....	J. R. Oliver.....	7,962	2,124	2,124	39	1	7/1	9-12	25.00
St. John's Hospital ★.....	Brooklyn.....	R. Gettinger	3,959	1,038	1,038	36	1	7/1	9	100.00
Buffalo General Hospital ★.....	Buffalo.....	K. Terplan	10,576	3,838	3,838	42	4	.....	9	.....
Edward J. Meyer Memorial Hospital ★[4].....	Buffalo.....	W. F. Jacobs and S. Sanes	9,101	2,236	2,236	32	3	7/1	9-36	50.00
Millard Fillmore Hospital ★.....	Buffalo.....	H. J. Welsh.....	11,822	3,996	3,637	29	1	7/1	9-12	50.00
Meadowbrook Hospital ★	Hempstead, N. Y.....	T. J. Curphey.....	4,770	960	960	36	2	.....	9	.....
Queens General Hospital ★[4].....	Jamaica, N. Y.....	A. Angrist	9,308	6,636	6,636	55	2	7/1	9-24	110.00
Beth Israel Hospital ★[4].....	New York City.....	A. Plant	7,548	2,340	2,100	32	2	.....	9	50.00
Bronx Hospital ★	New York City.....	J. Felsen	7,766	2,605	1,942	22	1	.....	9	.....
Fordham Hospital ★[4]	New York City.....	N. Block	9,434	789	702	18	1	.....	9	.....
Goldwater Memorial Hospital ★[4].....	New York City.....	M. Bevans	1,676	2,844	2,844	32	3	.....	9	.....

Numerical and other references will be found on page 405.

14. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies [6]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Harlem Hospital ★[4]	New York City	M. Rothman	16,302	1,735	1,735	12	2	4/1	9	$100.00
Lenox Hill Hospital ★[4]	New York City	G. L. Rohdenburg	11,897	2,137	2,128	36	1	.....	9	.....
Lincoln Hospital ★[4]	New York City	J. G. Sharnoff	9,546	1,850	1,850	28	2	.....	9	.....
Metropolitan Hospital ★[4]	New York City	A. Saccone	8,838	861	850	22	1	.....	9	.....
Montefiore Hospital for Chronic Diseases ★[4]	New York City	D. Marine	1,729	372	372	45	2	7/1	9	50.00
Morrisania City Hospital ★[4]	New York City	W. Aronson	10,703	1,705	1,705	13	1	.....	9	.....
Mount Sinai Hospital ★[4]	New York City	P. Klemperer	14,534	5,524	5,524	41	9	1/1, 7/1	9-12	.....
New York City Hospital ★	New York City	J. R. Lisa	7,142	1,339	1,099	37	2	7/1	9	60.00
New York Hospital ★[4]	New York City	J. G. Kidd	18,267	5,340	4,008	57	1	.....	9	.....
New York Post-Graduate Medical School and Hospital ★[4]	New York City	M. N. Richter	8,423	3,782	3,702	41	3	7/1, 10/1	9-24	90.00
Presbyterian Hospital ★[4]	New York City	J. W. Jobling	25,985	4,613	4,247	53	3	.....	9	.....
Roosevelt Hospital ★[4]	New York City	W. W. Brandes	7,292	2,124	2,124	37	2	7/1	9-12	50.00
St. Luke's Hospital ★[4]	New York City	L. C. Knox	8,165	1,888	1,875	39	1	Varies	9-36	50.00
St. Vincent's Hospital ★[4]	New York City	A. Rottino	11,741	1,832	1,832	48	1	.....	9	.....
Sydenham Hospital ★	New York City	G. Silverman	5,206	1,686	1,686	44	1	.....	9	.....
Willard Parker Hospital [4]	New York City	V. B. Dolgopol	4,616	25	25	42	1	.....	9	.....
Rochester General Hospital ★[4]	Rochester, N. Y.	M. G. Bohrod	9,373	6,700	6,000	70	1	.....	9	.....
St. Mary's Hospital ★[4]	Rochester, N. Y.	S. M. Bouton Jr.	8,313	3,038	2,130	32	1	7/1	9-12	125.00
Strong Memorial and Rochester Municipal Hospitals ★[4]	Rochester, N. Y.	G. H. Whipple	14,357	3,070	3,070	75	3	.....	9-24	41.66
Ellis Hospital ★[4]	Schenectady, N. Y.	E. Kellert	12,742	3,787	3,772	27	2	7/1	9-36	125.00
Syracuse University Medical Center ★	Syracuse, N. Y.	J. H. Ferguson	4,287	903	903	39	1	.....	9	.....
Samaritan Hospital ★[4]	Troy, N. Y.	G. H. Klinck	4,559	1,919	1,900	40	1	.....	9	.....
Grasslands Hospital ★[4]	Valhalla, N. Y.	G. Dalldorf	4,465	1,596	1,546	52	2	.....	9	.....
Duke Hospital ★[4]	Durham, N. C.	W. D. Forbus	12,927	16,815	16,815	63	14	Varies	9	.....
Watts Hospital ★	Durham, N. C.	J. B. Miale	7,527	2,291	2,291	28	1	.....	9	.....
North Carolina Baptist Hospital ★[4]	Winston-Salem, N. C.	R. P. Morehead	6,492	1,743	1,743	54	4	7/1	9	41.66
City Hospital ★	Akron, O.	L. Catron	10,909	3,384	3,384	31	2	.....	9	100.00
Christ Hospital ★	Cincinnati	I. H. Schroth	12,209	3,662	2,485	28	2	7/1	9-18	75.00
Cincinnati General Hospital ★[4]	Cincinnati	R. W. Austin	13,090	1,783	1,768	38	8	7/1	9-24	.....
City Hospital ★[4]	Cleveland	H. Lund	10,295	1,689	.....	33	8	.....	9	.....
Mount Sinai Hospital ★[4]	Cleveland	B. S. Kline	7,638	2,422	2,422	44	2	7/1	9-12	75.00
St. Luke's Hospital ★	Cleveland	R. Dominguez	10,015	2,404	2,113	33	1	7/1	9-12	50.00
St. Vincent Charity Hospital ★	Cleveland	W. P. Jennings	6,937	1,821	1,821	30	1	.....	9	.....
University Hospitals ★[4]	Cleveland	H. T. Karsner	20,256	.....	.....	62	2	7/1	9	.....
Starling-Loving University Hospital ★[4]	Columbus, O.	H. L. Reinhart	6,544	1,985	1,955	48	3	7/1	9	50.00
White Cross Hospital ★	Columbus, O.	R. S. Fidler	9,494	4,873	3,460	15	1	.....	9	.....
Miami Valley Hospital ★	Dayton, O.	M. Oosting	11,138	6,065	6,065	35	1	7/1	9	125.00
Toledo Hospital ★	Toledo, O.	B. Steinberg	7,143	2,162	1,844	28	1	7/1	9-36	75.00
Youngstown Hospital ★	Youngstown, O.	G. B. Kramer	17,432	.....	.....	19	1	.....	9	.....
University Hospitals ★	Oklahoma City	B. Halpert and H. C. Hop	5,574	1,839	1,581	40	3	.....	9	.....
Emanuel Hospital ★[4]	Portland, Ore.	H. H. Foskett	11,532	4,184	1,880	48	1	7/1	9-12	75.00
St. Vincent's Hospital ★	Portland, Ore.	F. R. Menne	10,739	4,638	.....	35	2	.....	9	.....
University of Oregon Medical School Hospitals and Clinics ★[4]	Portland, Ore.	W. C. Hunter	5,770	1,309	1,309	55	3	7/1	9	75.00
Abington Memorial Hospital ★	Abington, Pa.	J. Elman	7,207	4,301	2,081	35	1	7/1	9-18	100.00
Bryn Mawr Hospital ★	Bryn Mawr, Pa.	M. M. Strumia	5,899	3,851	3,517	36	2	7/1	9	50.00
George F. Geisinger Memorial Hospital ★	Danville, Pa.	H. F. Hunt	6,072	1,004	1,565	28	1	7/1	9	75.00
Pittsburgh City Home and Hospitals [4]	Mayview, Pa.	G. H. Fetterman	478	56	56	12	1	.....	9	.....
Germantown Dispensary and Hospital ★	Philadelphia	F. B. Lynch Jr.	6,614	1,529	910	52	1	7/1	9-36	.....
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	F. A. Case	5,420	1,687	1,687	34	1	7/1	9-24	.....
Hahnemann Hospital ★[4]	Philadelphia	S. W. Sappington	10,548	2,793	2,793	45	2	7/1	9-18	50.00
Hosp. of the Protestant Episcopal Church ★[4]	Philadelphia	W. P. Belk	7,794	.....	.....	48	1	.....	9	.....
Hosp. of the University of Pennsylvania ★[4]	Philadelphia	E. B. Krumbhaar	14,268	.....	.....	75	3	.....	9-36	.....
Jefferson Medical College Hospital ★	Philadelphia	C. J. Bucher	16,337	163,235	163,235	63	2	.....	9	.....
Jewish Hospital ★[4]	Philadelphia	C. Weiss	9,873	1,329	1,329	63	1	.....	9	.....
Mount Sinai Hospital ★[4]	Philadelphia	D. R. Meranze	6,706	2,020	2,020	56	1	1/1	9	100.00
Pennsylvania Hospital ★	Philadelphia	J. T. Bauer	8,668	1,835	1,835	46	2	7/1	9-18	20.00
Philadelphia General Hospital ★[4]	Philadelphia	J. H. Clark	22,701	1,883	1,883	52	1	Varies	9	93.33
Presbyterian Hospital ★	Philadelphia	J. W. Hooker	6,361	.....	.....	71	2	.....	9	.....
Temple University Hospital ★[4]	Philadelphia	L. W. Smith	10,932	.....	.....	43	2	.....	9	.....
Allegheny General Hospital ★	Pittsburgh	S. R. Haythorn	10,357	2,128	2,128	19	3	7/1	9	100.00
Children's Hospital [4]	Pittsburgh	M. L. Menten	4,593	247	247	27	1	Varies	9-12	75.00
Elizabeth Steel Magee Hospital [4]	Pittsburgh	M. Cohen	7,332	2,077	1,973	21	2	7/1	9	41.66
Mercy Hospital ★[4]	Pittsburgh	H. H. Permar	13,476	3,662	3,295	25	2	7/1	9-24	.....
Montefiore Hospital ★[4]	Pittsburgh	K. Yardumian	5,603	1,787	931	30	1	.....	9	.....
Presbyterian Hospital ★[4]	Pittsburgh	E. L. Heller	4,595	1,503	1,353	23	1	7/1	9-36	50.00
St. Francis Hospital ★	Pittsburgh	A. J. Bruecken	12,658	3,632	1,439	16	3	.....	9	.....
Western Pennsylvania Hospital ★[4]	Pittsburgh	A. Graham	11,166	1,670	1,670	23	1	7/1	9-24	75.00
Reading Hospital ★[4]	Reading, Pa.	E. D. Funk	6,695	2,204	1,419	68	1	7/1	9-12	125.00
Rhode Island Hospital ★	Providence, R. I.	B. E. Clarke	10,911	3,513	2,752	48	2	7/1	9	50.00
John Gaston Hospital ★	Memphis, Tenn.	D. H. Sprunt	11,290	1,737	1,711	40	2	.....	9	.....
St. Joseph Hospital ★	Memphis, Tenn.	T. C. Moss	10,236	4,446	3,096	25	1	.....	9	.....
Nashville General Hospital ★[4]	Nashville, Tenn.	W. A. DeMonbreun	6,586	821	820	20	2	.....	9	.....
Vanderbilt University Hospital ★[4]	Nashville, Tenn.	E. W. Goodpasture	6,205	.....	.....	61	3	.....	9	.....
Baylor University Hospital ★[4]	Dallas, Tex.	J. M. Hill	20,357	6,140	6,140	23	1	.....	9	.....
Parkland Hospital ★[4]	Dallas, Tex.	C. T. Ashworth	7,520	1,584	1,384	24	1	.....	9	.....
Jefferson Davis Hospital ★[4]	Houston, Tex.	W. W. Coulter Sr.	9,024	1,964	1,363	26	1	.....	9	.....
Mary Fletcher Hospital ★[4]	Burlington, Vt.	E. H. Buttles	4,415	844	829	44	2	7/1	9-12	100.00
Medical College of Virginia Hospital Div. ★[4]	Richmond, Va.	F. L. Apperly	14,416	4,780	4,684	34	2	7/1	9	37.50
Providence Hospital ★	Seattle	D. G. Mason	11,057	2,677	3,144	18	1	7/1	9-12	150.00
Tacoma General Hospital ★	Tacoma, Wash.	B. T. Terry	7,994	.....	.....	15	1	.....	9	.....
Charleston General Hospital ★	Charleston, W. Va.	W. G. J. Putschar	10,439	1,994	1,845	39	2	.....	9	.....
State of Wisconsin General Hospital ★[4]	Madison, Wis.	W. D. Stovall	12,682	2,823	2,784	65	2	7/1	9-36	25.00
Columbia Hospital ★[4]	Milwaukee	G. H. Hansmann	4,328	1,766	1,148	48	1	7/1	9-18	50.00
Milwaukee County Hospital ★[4]	Milwaukee	J. Grill	11,547	792	759	34	2	7/1	9-36	65.32
St. Joseph's Hospital ★	Milwaukee	J. Grill	11,495	2,158	2,115	15	1	.....	9	.....
Gorgas Hospital ★	Ancon, C. Z.	B. H. Kean	23,056	1,752	1,752	75	1	1/1	9	.....
Queen's Hospital ★	Honolulu, Hawaii	S. Price	11,282	2,893	2,893	28	1	7/1	9-18	150.00

Hospitals, 207; Assistant Residencies and Residencies, 438

Numerical and other references will be found on page 405.

15. PEDIATRICS

Navy Hospital
U. S. Naval Hospital,* Philadelphia

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Children's Hospital [4]	Birmingham, Ala	A. A. Walker	1,403	4,006	59	31	2	.....	9	.....
Jefferson and Hillman Hospitals *	Birmingham, Ala	A. A. Walker	878	564	60	11	1	1/1, 7/1	9-12	$50.00
Norwood Hospital *[4]	Birmingham, Ala	E. B. Smith	434	5,428	20	4	1	.....	9	150.00
General Hospital of Fresno County *[4]	Fresno, Calif	A. B. Cowan	573	1,111	41	15	1	7/1	9-12	135.00
California Babies' and Children's Hospital [4]	Los Angeles	Z. E. Heiney	353	12,092	3	2	1	1/1	9-12	200.00
Children's Hospital [4]	Los Angeles	V. Stork	1,854	21,722	163	127	5	7/1	9-18	80.00
Los Angeles County Hospital *[4]	Los Angeles	E. F. Patton	3,300	3,095	213	98	3	Varies	9-24	157.20
White Memorial Hospital *[4]	Los Angeles	M. B. Brooks	438	8,302	36	26	2	7/1	9-12	116.00
Children's Hospital of the East Bay [4]	Oakland, Calif	C. Sweet	3,037	17,762	30	16	3	4/1, 7/1	9-12	150.00
Children's Hospital *[4]	San Francisco	C. F. Gelston	584[b]	1,912[b]	...	..	2	.....	9	.....
St. Mary's Hospital *	San Francisco		3,001	3,204	63	29	1	.....	9	.....
San Francisco Hospital *[4]	San Francisco	M. B. Olney	555	.....	26	8	1	Varies	9	115.00
Stanford University Hospitals *[4]	San Francisco	H. K. Faber	468	15,467	16	7	4	7/1	9-18	50.00
University of California Hospital *[4]	San Francisco	F. S. Smyth	557	10,953	32	32	3	Varies	9-12	50.00
Children's Hospital [4]	Denver	W. W. Barber	1,891	.....	41	35	6	7/1	9-36	100.00
Denver General Hospital *	Denver	W. Jones	1,915	5,435	66	26	1	1/1, 7/1	9-24	50.00
Hospital of St. Raphael *	New Haven, Conn		1,422	.....	18	7	1	7/1	9	75.00
New Haven Hospital *[4]	New Haven, Conn	G. Powers	1,095	7,213	68	..	7	7/1	9-12	[a]
Children's Hospital [4]	Washington, D. C	J. S. Wall	6,512	.....	275	223	12	6/1	9-24	40.00
Freedmen's Hospital *[4]	Washington, D. C	A. deG. Smith	671	2,425	90	25	2	1/1	9-36	.....
Gallinger Municipal Hospital *[4]	Washington, D. C		1,152	5,906	56	19	4	.....	9	.....
Grady Memorial Hospital *	Atlanta, Ga	R. W. Dickson	728	20,668	77	36	6	7/1	9	20.00
Henrietta Egleston Hospital for Children [4]	Atlanta, Ga	M. H. Roberts	954	.....	59	27	2	8/1, 10/1	9	50.00
University Hospital *[4]	Augusta, Ga	C. M. Burpee	1,369	1,379	83	12	2	10/1	9-18	35.00
Children's Memorial Hospital [4]	Chicago	S. Gibson	3,330	45,816	116	87	20	1/1, 7/1	9-12	75.00
Cook County Hospital *[4]	Chicago	M. L. Blatt	8,040	.....	425	365	9	1/1, 7/1	9-36	25.00
Mercy Hospital-Loyola University Clinics *	Chicago	H. A. Oberhelman	2,758	4,143	120	51	1	10/1	9-36	75.00
Michael Reese Hospital *[4]	Chicago	J. Gerstley	2,163	6,562	184	143	4	7/1, 10/1	9-36	25.00
Presbyterian Hospital *[4]	Chicago	C. G. Grulee	990	3,524	24	16	2	7/1	9	50.00
Provident Hospital *[4]	Chicago	E. W. Beasley	1,899	4,710	39	35	1	1/1	9	50.00
Research and Educational Hospitals *[4]	Chicago	H. G. Poncher	198	4,699	25	25	2	.....	9-24	55.00
St. Luke's Hospital *	Chicago	S. C. Henn	386	6,845	16	13	1	7/1	9-36	25.00
St. Vincent's Infant and Maternity Hosp. [4]	Chicago	M. L. Blatt	881	.....	11	11	2	1/1, 7/1	9-12	50.00
University of Chicago Clinics *[4]	Chicago		1,066	20,791	43	37	4	Varies	9-36	25.00
Little Company of Mary Hospital *	Evergreen Park, Ill	E. G. Lawler	3,589	.....	23	12	1	.....	9-12	100.00
Indianapolis City Hospital *[4]	Indianapolis	J. C. Carter	598	3,881	83	14	1	4/1	9-24	30.00
Indiana University Medical Center *[4]	Indianapolis	M. Winters	1,451	4,373	144	61	2	.....	9-24	33.00
University Hospitals *[4]	Iowa City	P. C. Jeans	821	2,496	51	21	5	7/1	9	25.00
University of Kansas Hospitals *[4]	Kansas City, Kan	F. Neff	620	2,789	30	20	1	.....	9	50.00
Louisville General Hospital *[4]	Louisville, Ky	J. W. Bruce	2,608	7,006	205	35	5	7/1	9	54.00
Charity Hospital of Louisiana *[4]	New Orleans		2,922	16,564	345	131	12	Varies	9-36	60.00
Touro Infirmary *	New Orleans	J. Graubarth	297	4,319	26	9	1	.....	9	50.00
Baltimore City Hospitals *[4]	Baltimore	H. W. Josephs	217	326	14	7	4	4/1	9-12	40.00
Johns Hopkins Hospital *[4]	Baltimore	E. A. Park	1,481	30,906	147	102	7	7/1	9	.....
Union Memorial Hospital *[4]	Baltimore	D. C. W. Smith	463	1,848	34	15	2	7/1	9-24	40.00
University Hospital *[4]	Baltimore	C. L. Joslin	534	8,318	133	58	3	7/1	9	50.00
Boston City Hospital *[4]	Boston	M. J. English	4,149	6,942	100	13	1	7/1	9	50.00[c]
Boston Floating Hospital [4]	Boston	J. M. Baty	1,092	.....	37	22	4	Varies	9	50.00[a]
Children's Hospital *[4]	Boston		.....	.....	...	..	6	.....	9	.....
Massachusetts General Hospital *	Boston	A. M. Butler	518[b]	4,945[b]	...	..	2	.....	9	.....
University Hospital *[4]	Ann Arbor, Mich	E. H. Watson	1,370	8,143	79	49	9	Varies	9	100.85
Children's Hospital [4]	Detroit	C. A. Smith	3,386	12,874	339	176	15	.....	9	.....
Henry Ford Hospital *[4]	Detroit	J. A. Johnston	1,854	17,574	40	29	4	7/1	9-18	175.00
St. Mary's Hospital *	Duluth, Minn	R. E. Nutting	3,147	.....	59	52	1	7/1	9	75.00
Minneapolis General Hospital *[4]	Minneapolis	A. V. Stoesser	1,074	1,943	26	22	3	7/1	9-18	91.50[c]
University Hospitals *[4]	Minneapolis	I. McQuarrie	1,096	4,386	80	73	3	7/1	9-36	91.50
Mayo Foundation	Rochester, Minn	H. F. Helmholz	(See page 405)				12	.....	9	.....
Children's Mercy Hospital [4]	Kansas City, Mo	C. B. Summers	1,443	7,961	70	36	4	7/1	9-36	50.00
Kansas City General Hospital *	Kansas City, Mo	C. B. Summers	1,169	3,096	25	22	1	1/1	9-24	50.00
Homer G. Phillips Hospital *[4]	St. Louis	D. Jones	1,686	2,766	63	38	2	1/1	9	80.00
St. Louis Children's Hospital [4]	St. Louis	A. F. Hartmann	3,125	.....	118	82	11	Varies	9	25.00
St. Louis City Hospital *[4]	St. Louis	A. F. Hartmann	1,244	2,017	105	62	3	7/1	9	80.00
St. Mary's Group of Hospitals *	St. Louis	J. Zahorsky	1,763	9,907	54	36	3	7/1	9	35.00
Jersey City Hospital *[4]	Jersey City, N. J	C. P. DeFuccio	3,227	5,604	69	20	3	Varies	9-12	35.00
Albany Hospital *[4]	Albany, N. Y	O. A. Faust	664	2,275	28	24	3	7/1	9-12	25.00
Cumberland Hospital *[4]	Brooklyn	T. B. Givan	1,474	3,377	37	22	2	7/1	9-12	50.00
Jewish Hospital *[4]	Brooklyn	B. Kramer	1,327	8,978	47	27	3	7/1	9-12	25.00
Kings County Hospital *[4]	Brooklyn	G. Brockway and L. Krahulik	2,851	3,860	169	84	4	7/1	9-18	60.00
Long Island College Hospital *[4]	Brooklyn	C. A. Weymuller	509	6,375	26	21	3	7/1	9-24	25.00
Norwegian Lutheran Deaconesses' Home and Hospital *[4]	Brooklyn	J. A. Monfort and T. B. Givan	974	600	...	..	1	10/1	9	.....
Children's Hospital [4]	Buffalo	D. P. Arnold	1,727	.....	...	132	7	7/1	9-12	50.00
Edward J. Meyer Memorial Hospital *[4]	Buffalo	F. J. Gustina	1,164	3,336	38	18	3	7/1	9-48	50.00
Queens General Hospital *[4]	Jamaica, N. Y	H. A. Reisman	950	2,438	50	31	3	7/1	9-24	110.00
Bellevue Hospital, Div. III—N. Y. Univ. *[4]	New York City	Emmet Holt	2,081	17,494	69	60	16	Varies	9-24	25.00
Flower and Fifth Avenue Hospitals *[4]	New York City	R. A. Benson	986	1,624	10	4	2	.....	9-12	100.00
Harlem Hospital *[4]	New York City	M. Gleich	.....	.....	...	..	2	1/1, 4/1	9	50.00
Lenox Hill Hospital *[4]	New York City	H. Chaplin and J. S. Leopold	552	.....	8	6	1	7/1	9	25.00
Lincoln Hospital *[4]	New York City	A. T. Martin	1,012	5,782	42	29	2	7/1	9	60.00
Metropolitan Hospital *[4]	New York City	R. A. Benson	1,168	5,722	31	20	2	1/1, 4/1	9-12	50.00
Morrisania City Hospital *[4]	New York City	L. Barenberg	935	1,398	45	20	2	7/1	9	50.00
Mount Sinai Hospital *[4]	New York City		.....	.....	...	..	2	1/1, 7/1	9-12	50.00
New York City Hospital *	New York City	C. S. Boyd	617	3,911	30	22	1	7/1	9	110.00
New York Hospital *[4]	New York City	S. Z. Levine	1,223	31,541	96	75	13	7/1	9-48	25.00
New York Post-Graduate Medical School and Hospital *[4]	New York City	A. G. DeSanctis	557	10,727	36	19	4	1/1, 4/1	9-24	90.00
Presbyterian Hospital *	New York City	R. McIntosh	3,568	30,442	122	..	13	.....	9	.....
St. Luke's Hospital *[4]	New York City	H. F. Jackson	520	4,910	7	5	2	Varies	9-24	50.00
St. Vincent's Hospital *[4]	New York City	S. Brady	1,040	2,078	27	10	2	7/1	9-18	25.00
Genesee Hospital *	Rochester, N. Y	J. Aikman	826	708	12	6	1	.....	9	83.33
Strong Memorial and Rochester Municipal Hospitals *[4]	Rochester, N. Y	S. W. Clausen	1,274	10,217	65	54	7	7/1	9-48	41.66
Sea View Hospital [4]	Staten Island, N. Y	B. Ratner	327	.....	18	4	4	1/1, 7/1	9	110.00
Syracuse Memorial Hospital *[4]	Syracuse, N. Y	B. C. Doust	578	.....	31	20	2	7/1	9-12	.....
Grasslands Hospital *[4]	Valhalla, N. Y	F. D. Barnes	380	912	16	11	2	1/1	9	75.00
Charlotte Memorial Hospital *[4]	Charlotte, N. C	J. S. Hunt	1,350	2,569	26	11	1	.....	9	75.00
Duke Hospital *[4]	Durham, N. C	W. C. Davison	849	8,160	78	43	4	Varies	9	83.33
Watts Hospital *	Durham, N. C		611	178	20	5	1	7/1	9	75.00
Babies Hospital	Wilmington, N. C	J. B. Sidbury	1,312	.....	23	..	1	7/1	9	150.00
North Carolina Baptist Hospital *[4]	Winston-Salem, N. C	R. B. Lawson	397	1,308	24	18	3	7/1	9	41.66

Numerical and other references will be found on page 405.

15. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [a]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [a]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Trinity Hospital ★[9]	Minot, N. D.		.....	.....	...	..	1	.....	9	.....
Children's Hospital	Akron, O.	M. F. Jones	5,448	.....	128	42	2	10/1	9	.....
Children's Hospital [4]	Cincinnati	A. A. Weech	7,807	19,509	141	82	16	7/1	9-18	$35.00
Cincinnati General Hospital ★[4]	Cincinnati	A. A. Weech	1,084	6,135	138	48	19	7/1	9-24	.....
University Hospitals ★[4]	Cleveland	H. J. Gerstenberger	.....	.....	...	..	3	7/1	9	.....
Children's Hospital [4]	Columbus, O.	E. H. Baxter	2,702	21,814	...	91	7	7/1	9-12	80.00
University Hospitals ★[4]	Oklahoma City	C. H. Hall	713	2,999	99	36	1	7/1	9-18	75.00
University of Oregon Medical School Hospitals and Clinics ★[4]	Portland, Ore.	J. B. Bilderback	1,330	2,235	98	78	3	7/1	9-18	75.00
Babies' Hospital [4]	Philadelphia	L. E. McClure	224	23,472	12	8	2	7/1	9-12	83.33
Children's Hospital [4]	Philadelphia	J. Stokes Jr.	2,419	32,000	102	65	12	7/1	9-27	.....
Children's Hospital of the Mary J. Drexel Home [4]	Philadelphia		1,003	12,042	20	16	1	1/1	9-12	100.00
Hahnemann Hospital ★[4]	Philadelphia	C. S. Raue	537	4,370	41	..	1	7/1	9-18	50.00
Hosp. of the University of Pennsylvania ★[4]	Philadelphia	J. Stokes Jr.	372	2,755	13	20	1	.....	9	.....
Jefferson Medical College Hospital ★	Philadelphia	E. L. Bauer	676	5,324	55	39	1	.....	9	.....
Jewish Hospital ★[4]	Philadelphia		530	112	19	14	1	.....	9-18	75.00
Philadelphia General Hospital ★[4]	Philadelphia		1,884	.....	93	..	1	Varies	9	93.33
St. Christopher's Hospital for Children [4]	Philadelphia		2,017	42,496	62	18	7	.....	9	.....
Temple University Hospital ★[4]	Philadelphia		477	4,473	23	15	3	7/1	9-36	52.00
Children's Hospital [4]	Pittsburgh		.....	.....	...	..	6	Varies	9-12	75.00
Roper Hospital ★[4]	Charleston, S. C.	M. W. Beach	956	7,026	79	31	3	7/1	9-27	50.00
T. C. Thompson Children's Hospital	Chattanooga, Tenn.	J. W. Hocker	777	7,815	89	5	3	.....	9	.....
John Gaston Hospital ★	Memphis, Tenn.	F. T. Mitchell	1,437	4,514	84	50	2	.....	9	.....
George W. Hubbard Hospital of Meharry Medical College ★[4]	Nashville, Tenn.	W. H. Maddux	554	3,018	31	6	1	1/1	9	75.00
Vanderbilt University Hospital ★[4]	Nashville, Tenn.	A. Christie	731	12,016	101	60	4	7/1	9	.....
Children's Medical Center [4]	Dallas, Tex.	H. L. Moore and J. G. Young	2,235	18,061	96	21	9	Varies	9-27	50.00
John Sealy Hospital ★[4]	Galveston, Tex.	A. Hansen	583	6,243	83	49	3	Varies	9	50.00
Jefferson Davis Hospital ★[4]	Houston, Tex.	B. Moody	976	4,710	144	43	1	7/1	9	50.00
Salt Lake County General Hospital ★[4]	Salt Lake City	J. A. Anderson	470	2,527	16	12	1	.....	9	50.00
University of Virginia Hospital ★[4]	Charlottesville, Va.	W. W. Waddell Jr.	617	4,025	60	29	5	7/1	9	25.00
Medical College of Virginia, Hospital Div. ★[4]	Richmond	L. H. Sutton	1,635	7,377	116	42	3	7/1	9	37.50
Children's Orthopedic Hospital [4]	Seattle, Wash.		.....	.....	...	..	1	.....	9	.....
State of Wisconsin General Hospital ★[4]	Madison	J. E. Gonce Jr.	562	2,841	23	19	2	1/1	9-36	25.00
Milwaukee Children's Hospital [4]	Milwaukee	F. R. Janney	4,190	15,293	102	66	7	7/1	9	.....
Milwaukee County Hospital ★[4]	Milwaukee	G. H. Fellman	3,740	528	19	2	2	7/1	9-36	65.32

Hospitals, 131; Assistant Residencies and Residencies, 504

16. PHYSICAL MEDICINE

Stanford University Hospitals ★[4]	San Francisco	W. H. Northway	.....	.....	...	..	2	.....	9	.....
Michael Reese Hospital ★[4]	Chicago	C. O. Molander	.....	.....	...	..	2	.....	9	.....
Passavant Memorial Hospital ★	Chicago	J. S. Coulter	.....	.....	...	..	2[b]	.....	9	.....
Mayo Foundation	Rochester, Minn.	F. H. Krusen	(See page 405)		...	..	6	.....	9	.....

17. PLASTIC SURGERY

Mayo Foundation	Rochester, Minn.	G. B. New	(See page 405)		...	..	4	.....	9	.....
Kings County Hospital ★[4]	Brooklyn	W. A. Coakley	809	1,894	30	2	1	7/1	9-18	$110.00
Presbyterian Hospital ★[4]	New York City		.....	.....	...	..	2	.....	9	.....
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	R. H. Ivy	142	30	1	0	1	7/1	9-24	.....

18. PSYCHIATRY

The following services are approved by the Council and the American Board of Psychiatry and Neurology (See footnotes 1, 2 and 3)

Compton Sanitarium [1,4]	Compton, Calif.	G. Myers	545	.....	2	0	1	Varies	9	$250.00
Livermore Sanitarium [1]	Livermore, Calif.	C. W. Mack	606	.....	20	2	5	.....	9	.....
Los Angeles County Hospital ★[3,4]	Los Angeles	G. N. Thompson	4,563	.....	99	24	1	Varies	9-12	87.20
Langley-Porter Clinic [2,4]	San Francisco	K. M. Bowman	423	.....	...	..	12	.....	9	135.00
Mount Zion Hospital ★[2]	San Francisco	J. Kasanin	.....	1,868	...	..	2	3/1	9-18	75.00
Stanford University Hospitals ★[3,4,7]	San Francisco	G. S. Johnson	473	4,150	2	2	3	7/1	9-18	50.00
University of California Hospital ★[3,4]	San Francisco	K. M. Bowman	53	2,953	...	..	1	Varies	9-12	50.00
Mendocino State Hospital [2]	Talmadge, Calif.	M. J. Rowe	3,499	.....	142	5	2	.....	9	.....
Colorado Psychopathic Hospital [3,4]	Denver	C. A. Rymer	880	.....	25	17	6	9/1	9-36	100.00
Colorado State Hospital [2,4]	Pueblo, Colo.	F. H. Zimmerman	4,972	.....	381	126	7	.....	9	.....
Institute of Living (Neuro-Psychiatric Institute of the Hartford Retreat) [3,4]	Hartford, Conn.	C. C. Burlingame	1,107	.....	16	5	7	.....	Varies	250.00[c]
Connecticut State Hospital [2,4]	Middletown, Conn.	H. S. Whiting	3,623	.....	242	39	3	.....	9	75.00
New Haven Hospital ★[2,4]	New Haven, Conn.	E. Kahn	256	1,315	4	..	9	7/1	9-12	[a]
Norwich State Hospital [2,4]	Norwich, Conn.	L. H. Cohen	3,181	67	232	42	6	Varies	Varies	210.00
Delaware State Hospital [2,4]	Farnhurst, Del.	M. A. Tarumianz	1,200	772	108	25	4	Varies	Varies	75.00
Gallinger Municipal Hospital ★[1,4]	Washington, D. C.		3,000	.....	92	14	1	.....	9	.....
St. Elizabeths Hospital ★[3,4]	Washington, D. C.	R. H. Guthrie	9,787	.....	35	23	11	1/1	9	166.66
Chicago State Hospital [2,4]	Chicago	G. Heilbrunn	4,500	.....	620	64	5	.....	9	.....
Cook County Hospital ★[2,4]	Chicago	C. A. Neymann	6,332	.....	159	4	4	1/1,-7/1	9-36	25.00
Illinois Neuropsychiatric Institute [3,4,7]	Chicago	F. J. Gerty	567	.....	...	..	5	.....	9	.....
Michael Reese Hospital ★[2,4,7]	Chicago		271	3,224	9	3	2	.....	9	.....
St. Luke's Hospital ★[1,4]	Chicago	A. P. Solomon	279	.....	6	3	2	7/1	9-36	25.00
University of Chicago Clinics ★[2,4]	Chicago	D. Slight	189	2,988	...	..	2	.....	9-36	25.00
Elgin State Hospital [2,4]	Elgin, Ill.	E. Liebert	6,243	2,117	434	136	6	Varies	9-12	125.00
Manteno State Hospital [2,4]	Manteno, Ill.	M. Wallenberg	6,399	1,800	665	112	4	.....	9-36	50.00
Peoria State Hospital [2,4]	Peoria, Ill.	H. B. Knowles	3,315	.....	233	0	5	.....	9-24	50.00
Central State Hospital [2]	Indianapolis	M. A. Bahr	2,228	.....	260	72	4	.....	9	.....
Indianapolis City Hospital ★[2]	Indianapolis	L. D. Carter	660	845	36	4	1	4/1	9-36	30.00
Logansport State Hospital [2,4]	Logansport, Ind.	C. L. Williams	3,055	.....	238	0	6	7/1	9-36	240.00
Iowa State Psychopathic Hospital [3,4]	Iowa City	W. R. Miller	321	.....	1	0	8	7/1	9	40.00
Menninger Sanitarium [2,4]	Topeka, Kan.	K. A. Menninger	162	376	3	2	8	1/1, 7/1	9-18	150.00[c]
U. S. Public Health Service Hospital [2]	Lexington, Ky.		3,286	.....	30	18	..	.....	9	.....
Johns Hopkins Hospital ★[3,4]	Baltimore	J. C. Whitehorn	237	3,898	0	..	18	7/1	9	.....
Spring Grove State Hospital [2,4]	Catonsville, Md.	S. W. Weltmer	2,971	2,102	207	80	8	.....	9	.....
Springfield State Hospital [2,4]	Sykesville, Md.	K. B. Jones	3,550	.....	188	53	6	.....	9	.....
Sheppard and Enoch Pratt Hospital [2,4]	Towson, Md.	R. McC. Chapman	412	.....	16	9	9	3/1, 7/1	9-36	100.00
Boston Psychopathic Hospital [3,4]	Boston	H. C. Solomon	1,408	4,500	19	7	8	9/1	9-12	95.00
Boston State Hospital [3,4]	Boston	H. F. Norton	3,973	.....	345	58	6	.....	9	.....
Massachusetts General Hospital ★[2]	Boston	S. Cobb	172[b]	2,752[b]	...	..	3	.....	9	.....
Foxboro State Hospital [2]	Foxboro, Mass.	J. T. Shea	1,568	.....	101	30	1	.....	9	.....
Gardner State Hospital [2,4]	Gardner, Mass.	C. E. Thompson	1,767	62	107	17	1	.....	9	177.00
Danvers State Hospital [2,4]	Hathorne, Mass.	L. Maletz	2,984	2,000	319	24	2	1/1, 7/1	9-12	45.00
Medfield State Hospital [2]	Medfield, Mass.	E. K. Holt	2,079	.....	124	26	2	.....	9	.....

Numerical and other references will be found on page 405.

18. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies[8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Northampton State Hospital[2,4]	Northampton, Mass.	L. W. Darrah	2,756	.....	224	0	3	Varies	Varies	.....
Grafton State Hospital[2,4]	North Grafton, Mass.	H. L. Paine	1,955	1,510	120	32	2	Varies	9-12	.....
Monson State Hospital[1]	Palmer, Mass.	M. B. Hodskins	1,512	.....	72	..	1[d]	Varies	9+	.....
Taunton State Hospital[2,4]	Taunton, Mass.	R. M. Chambers	2,464	1,739	292	125	5	7/1	9-24	$176.00
McLean Hospital[2,4]	Waverley, Mass.	K. J. Tillotson	327	.....	12	1	5	.....	9	.....
Westboro State Hospital[2,4]	Westboro, Mass.	H. Rickless	2,184	1,172	195	19	3	7/1	9-36	100.00
Worcester State Hospital[2,4]	Worcester, Mass.	W. Malamud	3,450	.....	264	64	10	.....	9	.....
University Hospital[★2,4]	Ann Arbor, Mich.	R. W. Waggoner	.....	2,977	...	..	6	Varies	Varies	100.85
City of Detroit Receiving Hospital[★1,4]	Detroit	J. M. Stanton	5,963	.....	235	35	3	7/1	9-18	145.58
Henry Ford Hospital[★2,4,7]	Detroit	T. J. Heldt	864	7,889	38	15	2	7/1	9-36	175.00
Eloise Hospital and Infirmary[★2,4]	Eloise, Mich.		5,075	.....	271	49	7	.....	9	.....
Kalamazoo State Hospital[2]	Kalamazoo, Mich.	R. A. Morter	3,894	.....	267	10	5	.....	9	.....
Pontiac State Hospital[2,4]	Pontiac, Mich.	H. C. Dunstone	2,312	310	215	63	4	Varies	9-36	287.50
Traverse City State Hospital[2,4]	Traverse City, Mich.	R. P. Sheets	3,410	.....	226	71	5	.....	9	.....
Ypsilanti State Hospital[2,4]	Ypsilanti, Mich.	O. R. Yoder	4,560	199	267	48	6	.....	9	.....
Minneapolis General Hospital[★1,4,7]	Minneapolis	J. C. Michael	1,423	1,286	163	34	1	7/1	9-18	91.50[c]
University Hospitals[★2]	Minneapolis	J. C. McKinley	259	.....	3	..	2	7/1	9-36	91.50
Mayo Foundation[5]	Rochester, Minn.	H. W. Woltman	(See Neurology; also page 405)							
St. Peter State Hospital[2]	St. Peter, Minn.	G. H. Freeman	2,837	.....	253	42	1	.....	9-24	75.00
State Hospital No. 1[2]	Fulton, Mo.	C. C. Ault	2,556	12	232	40	4	7/1	9-24	100.00
Kansas City General Hospital[★1,7]	Kansas City, Mo.	E. T. Gibson	541	677	28	17	1	.....	9-24	50.00
State Hospital No. 2[2]	St. Joseph, Mo.	F. A. Carmichael	3,083	.....	228	46	4	.....	9-36	100.00
Barnes Hospital[★2,4]	St. Louis	E. F. Gildea	266	3,155	0	..	3	7/1	9-24	25.00
City Sanitarium[2,4]	St. Louis	W. L. Moore	3,926	.....	191	66	6	.....	9	135.00
Homer G. Phillips Hospital[★2]	St. Louis	E. F. Gildea	(See Neurology)				1	.....	9	.....
St. Louis City Hospital[★3,4]	St. Louis	E. F. Gildea	1,402	.....	97	50	3	7/1	9	80.00
St. Vincent's Sanitarium[1]	St. Louis	P. E. Kubitschek	535	75	17	3	2	7/1	9	125.00
Hastings State Hospital[2,4]	Ingleside, Neb.	O. W. Everett	1,700	.....	125	48	2	.....	9	.....
Norfolk State Hospital[2]	Norfolk, Neb.	G. E. Charlton and E. E. Pate	1,324	110	83	0	5	.....	9-12	160.00
Bishop Clarkson Memorial Hospital[★2]	Omaha	A. E. Bennett	468	403	19	14	1	1/1	9-12	100.00
New Hampshire State Hospital[2]	Concord, N. H.	C. H. Dolloff	3,284	.....	239	75	1	.....	9-12	75.00
New Jersey State Hospital[2,4]	Greystone Park, N. J.	M. A. Curry	6,953	.....	645	106	7	.....	Varies	176.00
New Jersey State Hospital[2,4]	Marlboro, N. J.	J. B. Gordon	3,636	1,002	303	153	1	Varies	9-12	70.00
New Jersey State Hospital[2]	Trenton, N. J.	J. B. Spradley	3,850	.....	321	47	2	.....	9-12	100.00
Albany Hospital[★2,4,7]	Albany, N. Y.	S. E. Barrera	1,198	1,533	63	26	5	7/1	9-12	25.00
Hillside Hospital[2,4]	Bellerose, N. Y.	I. Silbermann	208	1,700	1	..	7	Varies	9	150.00
Binghamton State Hospital[2,4]	Binghamton, N. Y.	H. S. Gregory	3,360	.....	255	9	3	.....	9	.....
Pilgrim State Hospital[2,4]	Brentwood, N. Y.	H. J. Worthing	11,362	.....	512	185	20	.....	9	225.00
Brooklyn State Hospital[2]	Brooklyn	C. H. Bellinger	6,693	.....	1,192	149	12	.....	9	.....
Buffalo State Hospital[2,4]	Buffalo	C. Fletcher	3,588	1,920	303	46	4	.....	9	.....
Edward J. Meyer Memorial Hospital[★2,4]	Buffalo	A. L. Ulrich	1,295	585	72	18	3	7/1	9-36	59.00
Central Islip State Hospital[2,4]	Central Islip, N. Y.	D. Corcoran	8,455	2,991	524	193	9	.....	9	208.33
Gowanda State Homeopathic Hospital[2]	Helmuth, N. Y.	E. V. Gray	2,693	.....	258	42	6	.....	9	.....
Kings Park State Hospital[2]	Kings Park, N. Y.	A. E. Soper	7,819	1,782	483	107	4	.....	9	100.00
Marcy State Hospital[2]	Marcy, N. Y.	G. L. Warner	3,048	.....	247	16	4	.....	9	.....
Middletown State Homeopathic Hospital[2,4]	Middletown, N. Y.	W. A. Schmitz	3,857	919	262	85	4	Varies	9-12	225.00
Bellevue Hospital, Div. III—N. Y. Univ.[★2,4]	New York City	S. B. Wortis	29,558	8,803	874	326	24[g]	Varies	9-36	25.00
Manhattan State Hospital[1]	New York City	J. H. Travis	6,249	.....	1,228	262	4	.....	Varies	.....
New York Hospital[★2,4]	New York City	O. Diethelm	293	4,654	0	..	16	7/1	9-60	50.00
New York State Psychiatric Institute and Hospital[3,4]	New York City	I. H. MacKinnon	431	1,139	0	..	9	1/1, 7/1	9-24	33.33
U. S. Marine Hospital[2,7]	New York City	S. D. Vestermark	.....	.....	...	..	..	.....	9	.....
St. Lawrence State Hospital[2,4]	Ogdensburg, N. Y.	J. A. Pritchard	2,400	.....	179	29	3	Varies	Varies	150.00
Rockland State Hospital[2,4]	Orangeburg, N. Y.	R. E. Blaisdell	7,262	.....	360	136	12	.....	Varies	150.00
Hudson River State Hospital[2,4]	Poughkeepsie, N. Y.	J. R. Ross	5,104	398	501	148	2	Varies	9	225.00
Creedmoor State Hospital[2]	Queens Village, N. Y.	H. A. La Burt	6,122	2,767	301	94	3	Varies	Varies	225.00
Rochester State Hospital[2,4]	Rochester, N. Y.	J. L. Van De Mark	4,747	.....	329	16	3	.....	9	150.00
Strong Memorial and Rochester Municipal Hospitals[★2,4]	Rochester, N. Y.	R. Jaenike	524	625	...	..	1	7/1	9-12	125.00[c]
Syracuse Psychopathic Hospital[2]	Syracuse, N. Y.	H. A. Steckel	590	995	16	2	1	7/1	9-36	212.00
Utica State Hospital[2,4]	Utica, N. Y.	W. E. Merriman	2,596	133	205	18	2	Varies[e]	9	208.33
Grasslands Hospital[★2,4]	Valhalla, N. Y.	J. G. Lynn	1,213	916	52	21	6	Varies	Varies	117.50
New York Hospital-Westchester Division[3,4]	White Plains, N. Y.	C. O. Cheney	602	.....	11	4	6	7/1	9-18	125.00
Harlem Valley State Hospital[2,4]	Wingdale, N. Y.	A. M. Stanley	5,415	1,058	262	68	3	Varies	9-12	208.33
Duke Hospital[★3,4]	Durham, N. C.	R. S. Lyman	311	2,148	5	3	10	Varies	9	83.33
Cincinnati General Hospital[★2,4]	Cincinnati	J. Romano	920	679	30	16	11	7/1	9-24	.....
Longview State Hospital[2,4]	Cincinnati	E. A. Baber	3,283	.....	177	35	3	.....	9	.....
City Hospital[★3,4]	Cleveland	L. J. Karnosh	568	1,311	32	13	4	.....	9	25.00
Columbus State Hospital[2]	Columbus, O.	J. F. Bateman	3,700	1,560	185	31	2	.....	9	.....
Massillon State Hospital[2,4]	Massillon, O.	A. G. Hyde	3,338	744	281	71	3	1/1, 7/1	9-12	100.00
Harding Sanitarium[1]	Worthington, O.	G. T. Harding	359	.....	6	0	3	7/1	9-36	150.00
Oregon State Hospital[2]	Salem, Ore.	J. C. Evans	3,598	.....	371	53	2	.....	9	.....
Danville State Hospital[2]	Danville, Pa.	E. L. Sielke	2,831	1,732	196	21	3	.....	9	50.00
Harrisburg State Hospital[2,4]	Harrisburg, Pa.	H. K. Petry	2,936	.....	225	32	3	7/1	9	155.00
Norristown State Hospital[2]	Norristown, Pa.	A. P. Noyes	5,039	.....	338	22	6	.....	9	161.00
Friends Hospital[1,4]	Philadelphia	T. L. Dehne	386	.....	26	8	2	7/1	9-24	150.00
Institute of the Pennsylvania Hospital[3,4]	Philadelphia	E. D. Bond	892	.....	2	0	5	Varies	9-24	200.00
Pennsylvania Hospital, Department for Mental and Nervous Diseases[3,4]	Philadelphia	E. D. Bond	575	.....	12	0	8	Varies	9-24	100.00
Philadelphia General Hospital[★2,4]	Philadelphia		4,009	.....	381	..	1	Varies	....	93.33
Philadelphia State Hospital[2]	Philadelphia	C. A. Zeller	7,182	.....	525	54	3	.....	9	.....
Temple University Hospital[★2,4]	Philadelphia		176	525	13	3	1	7/1	9-36	52.00
St. Francis Hospital[★1,4]	Pittsburgh		3,012	235	96	14	3	10/1	9-36	80.00
Western State Psychiatric Institute and Clinic[2,4]	Pittsburgh	G. B. Pearson	210	.....	3	1	4	.....	9	.....
Warren State Hospital[2,4]	Warren, Pa.	R. H. Israel	3,139	.....	290	16	6	1/1, 6/1	9-36	158.00
State Hospital for Mental Diseases[2,4]	Howard, R. I.	J. F. Regan	3,512	573	356	81	8	Varies	9-36	150.00
Butler Hospital[1,4]	Providence, R. I.	A. H. Ruggles	230	.....	24	1	5	1/1, 7/1	9-12	50.00
Charles V. Chapin Hospital[1,4]	Providence, R. I.	J. J. McCaffrey	718	630	17	1	1	10/1	9-12	100.00
U. S. Public Health Service Hospital[2]	Ft. Worth, Tex.	C. R. Chaffin	1,920	.....	11	5	..	.....	9	.....
John Sealy Hospital[★2,4]	Galveston, Tex.	T. H. Harris	1,178	1,645	30	15	3	Varies	9	50.00
University of Virginia Hospital[★3,4]	Charlottesville, Va.	D. C. Wilson	415	1,457	8	2	8	7/1	9	50.00
Medical College of Virginia, Hosp. Div.[★3,4]	Richmond, Va.	R. F. Gayle	370	.....	15	1	2	7/1	9	37.50
Western State Hospital[3,4]	Ft. Steilacoom, Wash.	R. H. Rea	3,647	.....	360	131	6	7/1	9-36	200.00
Eastern State Hospital[2,4]	Medical Lake, Wash.	H. A. Perry	2,589	210	195	5	3	7/1	9-24	125.00
Northern State Hospital[2,4]	Sedro Woolley, Wash.	J. W. Doughty	2,613	.....	159	105	2	.....	9	100.00
State of Wisconsin General Hospital[★3,4,7]	Madison, Wis.	H. H. Reese	1,201	277	21	13	2	.....	9-36	25.00
Milwaukee County Hosp. for Mental Dis.[2,4]	Milwaukee	M. Kasak	1,533	185	27	8	9	1/1	9-36	50.00
Milwaukee Sanitarium[2,4]	Wauwatosa, Wis.	J. A. Kindwall	433	.....	8	1	2	7/1	9-36	130.00
Queen's Hospital[★2,4]	Honolulu, Hawaii	W. Shanahan	809	.....	4	4	1	7/1	9-18	150.00

Hospitals, 139; Assistant Residencies and Residencies, 632

Numerical and other references will be found on page 405.

19. RADIOLOGY

The following services are approved by the Council and the American Board of Radiology (See footnotes 1, 2 and 3)

Name of Hospital	Location	Chief of Service	Type of Training [12]	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital ★3,4	Los Angeles	R. A. Carter	Rad.	41,078	6,558	358	38	3	Varies	9-36	$157.50
St. Vincent's Hospital ★2	Los Angeles	K. S. Davis	Rad.	6,518	1,004	14	39	1	.....	9	.....
White Memorial Hospital ★3	Los Angeles	W. S. Stilson	Rad.	12,616	6,287	281	43	2	7/1	9-12	116.00
Orange County General Hospital ★1	Orange, Calif	W. Saul	Roent.	3,778	554	.....	32	1	7/1	9-24	.....
Mount Zion Hospital ★1	San Francisco	H. B. Weyrauch	Roent.	3,276	503	5	28	1	.....	9-18	75.00
San Francisco Hospital ★2,4	San Francisco	L. Bryan	Rad.	50,218	1,611	27	33	4	Varies	9	115.00
Stanford University Hospitals ★3,4	San Francisco	R. R. Newell	Rad.	15,633	6,712	205	36	4	7/1	9	50.00
University of California Hospital ★3,4	San Francisco	E. R. Miller	Rad.	18,559	14,294	156	79	4	Varies	9-12	50.00
Veterans Administration Facility [3]	W. Los Angeles	C. L. Lyons	Rad.	.....	.....	...	..	..	.....	....	.....
Colorado General Hospital ★2	Denver	E. A. Schmidt	Rad.	10,597	2,774	26	75	2	.....	9	.....
Hartford Hospital ★3	Hartford, Conn	D. J. Roberts	Rad.	12,672	5,870	86	34	1	Varies	Varies	.....
New Haven Hospital ★3,4	New Haven, Conn	H. Wilson	Rad.	23,959	3,500	51	69	4	.....	9	[8]
Garfield Memorial Hospital ★2,4	Washington, D. C.	E. A. Merritt	Rad.	7,018	1,752	...	54	2	.....	9-12	75.00
Georgetown University Hospital ★2	Washington, D. C.	F. O. Coe	Rad.	6,154	3,893	43	38	2	7/1	9-24	75.00
Sibley Memorial Hospital ★3	Washington, D. C.	W. M. Clopton	Rad.	6,655	1,137	29	51	1	.....	9-12	75.00
Veterans Administration Facility [2]	Washington, D. C.	S. R. Bersack	Rad.	.....	.....	...	..	..	.....	....	.....
Walter Reed General Hospital ★3	Washington, D. C.		Rad.	.....	.....	...	..	..	.....	....	.....
James M. Jackson Memorial Hospital ★2	Miami, Fla.	J. J. Jares	Rad.	12,416	5,278	52	21	1	.....	9	.....
Grady Memorial Hospital ★1	Atlanta, Ga.	G. R. Hrdlicka and H. S. Weens	Roent.	19,609	373	0	33	1	7/1	9	90.00
Piedmont Hospital ★3	Atlanta, Ga.	G. R. Hrdlicka	Rad.	3,388	1,018	...	48	1	.....	9	.....
Cook County Hospital ★3,4	Chicago	G. A. Landau	Rad.	53,879	25,883	127	21	4	.....	9	.....
Michael Reese Hospital ★3,4	Chicago	R. A. Arens	Rad.	23,383	6,204	1,300	56	2	.....	9-36	50.00
Mount Sinai Hospital ★2	Chicago	J. Arendt	Roent.	5,992	2,186	...	33	2	.....	9	100.00
Passavant Memorial Hospital ★3,4	Chicago	J. T. Case	Rad.	5,732	971	...	66	2	.....	9	.....
Presbyterian Hospital ★3	Chicago	F. H. Squire	Rad.	18,411	5,855	38	63	2	1/1, 7/1	9-36	50.00
Provident Hospital ★2,4	Chicago	B. W. Anthony	Rad.	5,460	817	15	50	1	1/1	9	50.00
Research and Educational Hospitals ★3,4	Chicago	T. J. Wachowski	Rad.	9,761	10,400	200	93	3	.....	9-36	55.00
St. Luke's Hospital ★3	Chicago	E. L. Jenkinson	Rad.	17,578	4,797	23	67	5	7/1	9-36	25.00
University of Chicago Clinics ★3	Chicago	P. C. Hodges	Rad.	20,858	6,833	69	73	5	Varies	9-36	25.00
Wesley Memorial Hospital ★2,4	Chicago	F. L. Hussey	Rad.	15,066[b]	1,658[b]	...	56	1	1/1	9-12	25.00
Evanston Hospital ★3	Evanston, Ill.	R. G. Willy	Rad.	10,019	210	0	82	1	.....	9	100.00
Veterans Administration Facility [3]	Hines, Ill.	C. W. McClanahan and H. Slobodin	Rad.	.....	.....	...	..	..	.....	....	.....
St. Francis Hospital ★2,4	Peoria, Ill.	P. R. Dirkse	Rad.	6,634	2,638	11	38	1	1/1	9-24	150.00
St. Margaret Hospital ★2	Hammond, Ind.	C. W. Rauschenbach	Roent.	3,719	579	17	11	1	2/15	9-36	150.00
Indianapolis City Hospital ★3	Indianapolis	J. A. Campbell	Rad.	11,215	2,619	54	28	2	4/1	9-60	30.00
Indiana University Medical Center ★3,4	Indianapolis	A. P. Echternacht	Rad.	10,937	7,404	76	46	3	.....	9-36	33.00
Methodist Hospital ★2	Indianapolis	H. C. Ochsner	Rad.	14,299	4,106	...	29	2	.....	9-18	80.00
University Hospitals ★3,4	Iowa City, Ia.	H. D. Kerr	Rad.	25,085	17,566	109	42	9	7/1	9	25.00
University of Kansas Hospitals ★3,4	Kansas City, Kan.	G. M. Tice	Rad.	25,705	6,603	220	49	2	.....	9-36	50.00
Charity Hospital of Louisiana ★3,4	New Orleans	L. Menville	Rad.	56,800	15,739	390	36	6	Varies	9-36	60.00
Southern Baptist Hospital ★3	New Orleans	L. W. Magruder	Rad.	8,942	401	...	17	1	.....	9	.....
Touro Infirmary ★3	New Orleans	M. D. Teitelbaum	Roent.	14,400	6,000	65	61	1	.....	9	50.00
Shreveport Charity Hospital ★3,4	Shreveport, La.	G. W. Riley	Rad.	4,680	7,119	60	50	2	7/1	9-36	60.00
Johns Hopkins Hospital ★3,4	Baltimore	J. W. Pierson	Rad.	110,241	8,872	125	67	5	7/1	9	.....
University Hospital ★2,4	Baltimore	H. J. Walton	Rad.	19,954	4,371	221	62	3	7/1	9	50.00
Beth Israel Hospital ★2	Boston	S. A. Robins	Rad.	10,066	2,424	14	51	2	.....	9	.....
Boston City Hospital ★3,4	Boston	P. F. Butler	Rad.	51,359	4,045	31	22	4	7/1	9	50.00[c]
Children's Hospital ★1,4	Boston	E. B. D. Neuhauser	Roent.	12,460	840	...	93	1	.....	9	.....
Joseph H. Pratt Diagnostic Hospital [1]	Boston	A. Ettinger	Roent.	9,701	1,505	...	..	1	.....	9	.....
Lahey Clinic [3]	Boston		Rad.	.....	.....	...	..	3	.....	9	.....
Massachusetts General Hospital ★3,4	Boston	G. W. Holmes	Rad.	28,473[b]	9,860[b]	...	..	3	.....	9	.....
Massachusetts Memorial Hospitals ★3,4	Boston	G. Levene	Rad.	9,321	2,672	60	72	3	7/1	9	.....
New England Deaconess Hospital [2]	Boston	J. H. Marks	Rad.	7,014[b]	4,925[b]	271[b]	48	1	.....	9	.....
Peter Bent Brigham Hospital ★3	Boston	M. C. Sosman	Rad.	29,085	2,846	260	75	2	.....	9	.....
Newton-Wellesley Hospital ★2	Newton, Mass.	C. R. Liebman	Roent.	6,228[b]	.....	...	21	1	.....	9	.....
University Hospital ★3,4	Ann Arbor, Mich.	F. J. Hodges	Rad.	49,404	14,954	246	64	6	Varies	9	100.85
City of Detroit Receiving Hospital ★2,4	Detroit	I. D. Harris	Roent.	27,927	.....	...	41	2	.....	9	.....
Grace Hospital ★3	Detroit	R. H. Stevens	Rad.	10,749	4,459	22	30	2	7/1	9-36	125.00
Harper Hospital ★3,4	Detroit	L. Reynolds	Rad.	16,000[b]	1,403[b]	340[b]	44	3	.....	9	.....
Henry Ford Hospital ★3,4	Detroit	H. P. Doub	Rad.	38,725	4,087	258	56	4	7/1	9-36	175.00
St. Mary's Hospital ★3	Detroit	F. C. Jewell	Rad.	8,067	4,153	59	52	3	.....	9	.....
Hurley Hospital ★3	Flint, Mich.	M. W. Clift	Rad.	15,636	4,172	39	33	1	.....	9	.....
St. Mary's Hospital ★1	Duluth, Minn.	J. R. McNutt	Rad.	6,811	2,909	29	67	1	7/1	9-12	75.00
University Hospitals ★3,4	Minneapolis	L. G. Rigler	Rad.	26,121	10,029	561	80	3	7/1	9-36	91.50
Mayo Foundation [3]	Rochester, Minn.	B. R. Kirklin	Rad.	164,201[b]	18,925[b]	3,000[b]	78[b]	15	(See page 405)		
Research Hospital ★3	Kansas City, Mo.	I. H. Lockwood	Rad.	48,354	1,932	375	44	3	1/1, 10/1	9-36	100.00
St. Joseph Hospital ★3,4	Kansas City, Mo.	C. E. Virden	Rad.	7,025	2,890	675	32	1	Varies	9	75.00
Barnes Hospital ★3	St. Louis	S. Moore	Rad.	20,733	10,470	81	66	3	.....	9	.....
Homer G. Phillips Hospital ★3	St. Louis	E. W. Spinzig	Rad.	20,995	1,190	57	23	1	.....	9	80.00
St. Louis City Hospital ★3,4	St. Louis	L. Sante	Rad.	33,079	1,599	195	50	3	7/1	9	80.00
St. Luke's Hospital ★3	St. Louis	O. C. Zink	Rad.	4,892	1,740	149	40	1	.....	9	.....
Creighton Memorial St. Joseph's Hosp. ★3,4	Omaha	J. F. Kelly	Rad.	11,357	1,210	92	45	1	.....	9	.....
University of Nebraska Hospital ★3	Omaha	H. B. Hunt	Rad.	4,500	2,085	103	93	2	.....	9	.....
Mary Hitchcock Memorial Hospital ★2	Hanover, N. H.	L. K. Sycamore	Rad.	9,992[b]	3,212[b]	25[b]	79	1	.....	9	.....
Newark Beth Israel Hospital ★1,4	Newark, N. J.	N. J. Furst	Rad.	5,215	2,625	160	26	1	7/1	9-24	100.00
Brooklyn Hospital ★2,4	Brooklyn	J. Pepe	Rad.	6,602	1,597	...	39	1	.....	9	.....
Jewish Hospital ★3,4	Brooklyn	M. G. Wasch	Rad.	13,824	2,763	3	31	2	7/1	9-18	25.00
Kings County Hosp. ★4 (D. R.,[2] Ther. Rad.[1])	Brooklyn	L. Harrington	D. R.	44,969	.....	...	16	2	.....	9	.....
		A. B. Friedmann	Ther.Rad.	.....	15,247	90	16	1	.....	9	.....
Long Island College Hospital ★3,4	Brooklyn	A. L. L. Bell	Rad.	13,499	3,648	87	39	4	7/1	9-36	25.00
Methodist Hospital ★2	Brooklyn	J. Daversa	Rad.	15,442[b]	1,306[b]	63[b]	21	1	.....	9	.....
Edward J. Meyer Memorial Hospital ★3,4	Buffalo	G. N. Scatchard	Rad.	10,533	2,330	16	32	3	7/1	9-36	50.00
Meadowbrook Hospital ★2	Hempstead, N. Y.	G. L. Carr	Rad.	4,717	3,143	14	36	1	.....	9	.....
Queens General Hospital ★2,4	Jamaica, N. Y.	I. S. Startz	Rad.	19,630	7,467	28	55	2	7/1	9-24	110.00
New Rochelle Hospital ★2	New Rochelle, N. Y.	H. Grimm	Roent.	7,971	1,457	9	31	1	.....	9	.....
Bellevue Hospital, Div. III—N. Y. Univ. ★1,4	New York City	I. I. Kaplan	Ther.Rad.	.....	8,562	634	28	4	Varies	9-12	25.00
Bellevue Hospital, Div. IV—Open Div. ★1,4	New York City	L. R. Friedman	D. R.	94,252	.....	...	28	5	Varies	9-12	25.00
Beth Israel Hospital ★1,4	New York City	A. Bendick	Rad.	5,429	117	26	32	3	7/1	9	50.00
Bronx Hospital ★2,4	New York City	W. Snow	Rad.	2,605	1,942	...	22	2	.....	9	.....
Flower and Fifth Avenue Hospitals ★3,4	New York City	F. Borrelli	Rad.	.....	.....	...	29	2	.....	9	.....
Goldwater Memorial Hospital ★1,4	New York City	H. K. Taylor	Roent.	9,008	1,465	0	32	1	.....	9	.....
Hospital for Joint Diseases ★3,4	New York City	M. M. Pomeranz	Rad.	10,565	1,751	0	27	1	Varies	9-36	40.00
Lenox Hill Hospital ★2,4	New York City	F. H. Ghiselin	Roent.	13,517	1,955	10	36	1	7/1	9	100.00
Lincoln Hospital ★1,4	New York City	C. Gottlieb	Rad.	14,390	874	...	28	1	.....	9	.....
Metropolitan Hospital ★2,4	New York City	T. B. Weinberg	Rad.	15,952	.....	...	22	1	.....	9	.....
Montefiore Hospital for Chronic Diseases ★2,4	New York City	S. Fineman	Rad.	7,765	5,604	41	45	3	1/1, 7/1	9	50.00

Numerical and other references will be found on page 405.

19. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training [12]	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Morrisania City Hospital ★[2,4]	New York City	S. Weitzner	Rad.	14,228	2,301	23	13	1	.....	9	.....
Mount Sinai Hospital ★[3,4]	New York City	M. L. Sussman	Rad.	22,475	7,264	54	41	4	1/1, 7/1	9-24	$50.00
New York City Hospital ★[1]	New York City	E. Kraft	D. R.	7,344	.....	...	37	1	7/1	9	110.00
New York Hospital ★[3,4]	New York City	H. L. Temple	Rad.	40,551	7,369	...	57	3	.....	9	.....
New York Polyclinic Medical School and Hospital ★[2]	New York City	E. E. Smith	Rad.	6,133	2,381	18	15	1	7/1	9	25.00
New York Post-Graduate Medical School and Hospital ★[2]	New York City	W. H. Meyer	Rad.	8,838	6,553	721	41	3	.....	9-24	30.00
Presbyterian Hospital ★[3,4]	New York City	R. Golden	Rad.	50,666	20,416	167	53	6	.....	9	41.67
Roosevelt Hospital ★[3,4]	New York City	W. H. Boone	Rad.	17,082	2,407	...	37	3	.....	9-36	25.00
St. Luke's Hospital ★[2]	New York City	E. J. Ryan and C. W. Breimer	Rad.	19,880	4,385	144	39	2	Varies	9-36	50.00
Genesee Hospital ★[1]	Rochester, N. Y.	M. A. Almy	Roent.	4,780	1,273	.....	44	1	.....	9	.....
Strong Memorial and Rochester Municipal Hospitals ★[3,4]	Rochester, N. Y.	G. H. Ramsey	Rad.	21,908	5,540	246	75	5	.....	9-48	125.00[c]
Ellis Hospital ★[1,4]	Schenectady, N. Y.	K. L. Mitton	Roent.	6,868	1,580	...	27	1	.....	9	.....
Sea View Hospital [1,4]	Staten Island, N. Y.	P. Slater	D. R.	14,902	.....	...	8	1	1/1, 7/1	9	110.00
Grasslands Hospital ★[3,4]	Valhalla, N. Y.	A. G. Debbie	Rad.	10,795	5,894	23	52	2	.....	9	.....
Charlotte Memorial Hospital ★[1,4]	Charlotte, N. C.	A. Tuggle	Rad.	7,687	2,515	43	37	1	.....	9-36	75.00
Duke Hospital ★[3,4]	Durham, N. C.	R. J. Reeves	Rad.	31,423	10,323	585	63	7	.....	9	.....
Watts Hospital ★[3]	Durham, N. C.	W. W. Vaughan	Rad.	17,795	3,287	243	28	1	.....	9	.....
North Carolina Baptist Hospital ★[3,4]	Winston-Salem, N. C.	J. P. Rousseau	Rad.	10,576	4,459	121	54	3	7/1	9	41.66
City Hospital ★[3]	Akron, Ohio	E. W. Rowland	Rad.	12,979	7,935	11	31	2	.....	9	100.00
Cincinnati General Hospital ★[3]	Cincinnati	H. G. Reineke	Rad.	16,843	6,399	...	38	7	7/1	9-48	.....
Jewish Hospital ★[3]	Cincinnati	S. Brown	Rad.	6,723	1,175	52	30	1	.....	9	.....
City Hospital ★[3,4]	Cleveland	H. Hauser	Rad.	24,000	8,000	...	33	4	.....	9	.....
Cleveland Clinic Foundation Hospital ★[3]	Cleveland	F. E. Templeton	Rad.	33,451	8,494	...	37	6	.....	9	100.00
St. Luke's Hospital ★[3]	Cleveland	R. J. May	Rad.	13,159	2,256	108	33	3	7/1	9-36	50.00
St. Vincent Charity Hospital ★[3]	Cleveland	J. R. Andrews	Rad.	3,866	222	6	30	1	.....	9	.....
University Hospitals ★[3,4]	Cleveland	H. Hauser	Rad.	20,893[b]	3,775[b]	171[b]	62	2	7/1	9	.....
University Hospitals ★[1]	Oklahoma City	J. E. Heatley	Rad.	16,739	11,356	...	40	1	.....	9	.....
Good Samaritan Hospital ★[3]	Portland, Ore.	B. Isenhart	Rad.	7,169	1,195	80	41	1	.....	9	.....
St. Vincent's Hospital ★[3]	Portland, Ore.	S. E. Rees	Rad.	7,259	1,746	...	35	1	.....	9	.....
University of Oregon Medical School Hospitals and Clinics ★[2,4]	Portland, Ore.	W. Y. Burton	Rad.	19,257	1,487	27	55	3	7/1	9	75.00
Abington Memorial Hospital ★[3]	Abington, Pa.	J. D. Zulick	Rad.	10,977	2,466	...	35	1	.....	9	.....
Bryn Mawr Hospital ★[3]	Bryn Mawr, Pa.	R. S. Bromer	Rad.	12,666	3,183	136	36	2	7/1	9	50.00
Graduate Hospital of the University of Pennsylvania ★[3]	Philadelphia	A. Finkelstein	Rad.	9,584	3,779	50	34	2	7/1	9-24	.....
Hahnemann Hospital ★[2,4]	Philadelphia	N. V. Ludwick	Rad.	10,266	3,177	446	45	2	.....	9	.....
Hospital of the Protestant Episcopal Church ★[2,4]	Philadelphia	D. A. Sampson	Roent.	9,008	1,885	22	48	1	.....	9	.....
Hosp. of the University of Pennsylvania ★[2,4]	Philadelphia	E. P. Pendergrass	Rad.	9,560[b]	3,885[b]	40[b]	75	12	.....	9	.....
Jeanes Hospital [2]	Philadelphia	G. Bird	Ther.Rad.	1,309[b]	1,995[b]	47[b]	65	1	.....	9	.....
Jefferson Medical College Hospital ★[3]	Philadelphia	P. C. Swenson	Rad.	23,072	.....	1,620	63	4	1/1	9	25.00
Jewish Hospital ★[3,4]	Philadelphia	L. Solis-Cohen	Rad.	6,703	524	156	63	1	.....	9	.....
Mount Sinai Hospital ★[3,4]	Philadelphia	L. Edeiken and G. Rosenbaum	Rad.	7,947[b]	695[b]	74[b]	56	1	.....	9	.....
Pennsylvania Hospital ★[3]	Philadelphia	P. A. Bishop	Rad.	7,432	1,435	158	46	1	7/1	9-18	20.00
Philadelphia General Hospital ★[2,4]	Philadelphia	B. P. Widmann	Rad.	16,817	3,482	11,264	52	1	Varies	9	93.33
Presbyterian Hospital ★[2]	Philadelphia	J. H. Yastine	Rad.	7,324[b]	5,227[b]	70[b]	71	1	.....	9	.....
Temple University Hospital ★[3,4]	Philadelphia	W. E. Chamberlain	Rad.	19,123[b]	4,181[b]	139[b]	43	3	.....	9	.....
Elizabeth Steel Magee Hospital [3,4]	Pittsburgh	S. G. Henderson	Rad.	4,265	2,377	64	21	2	10/1	9-36	100.00[c]
Mercy Hospital ★[1,4]	Pittsburgh	H. N. Mawhinney	Rad.	14,502	6,854	171	25	1	.....	9	.....
Montefiore Hospital ★[3]	Pittsburgh	M. F. Goldsmith	Rad.	5,816	1,010	...	30	1	.....	9	.....
Western Pennsylvania Hospital ★[2,4]	Pittsburgh	R. G. Alley and L. Freedmen	Rad.	9,077	3,001	99	23	1	.....	9-24	100.00
Robert Packer Hospital ★[3]	Sayre, Pa.	J. W. Settle Jr.	Rad.	8,695	3,380	36	34	1	.....	9	.....
Roper Hospital ★[2]	Charleston, S. C.	H. Rudisill Jr.	Rad.	9,027	2,882	37	44	2	.....	9	.....
Baptist Memorial Hospital ★[3]	Memphis, Tenn.	J. E. Whiteleather	Rad.	8,957	4,288	512	15	3	.....	9-36	25.00
John Gaston Hospital ★[3]	Memphis, Tenn.	H. Curl	Rad.	13,990	2,539	50	40	3	.....	9	.....
Methodist Hospital ★[3]	Memphis, Tenn.	S. W. Coley	Rad.	8,957	3,217	17	21	1	.....	9	.....
Vanderbilt University Hospital ★[3,4]	Nashville, Tenn.	C. C. McClure	Rad.	11,206	2,904	...	61	1	.....	9	.....
Baylor University Hospital ★[3,4]	Dallas, Tex.	A. Seeds	Rad.	6,943	1,804	52	23	2	.....	9	.....
Parkland Hospital ★[3,4]	Dallas, Tex.	A. J. Mellwain	Rad.	13,874	1,923	66	24	1	.....	9	.....
John Sealy Hospital ★[2,4]	Galveston, Tex.	J. B. Johnson	Rad.	12,345	1,781	...	50	2	Varies	9	50.00
Scott and White Hospital ★[3]	Temple, Tex.	C. A. Stevenson	Rad.	30,370	4,370	236	33	2	.....	9	.....
Mary Fletcher Hospital ★[1,4]	Burlington, Vt.	O. S. Peterson Jr.	Rad.	4,244	3,468	73	44	2	7/1	9-12	50.00
University of Virginia Hospital ★[3,4]	Charlottesville, Va.	V. W. Archer	Rad.	20,279	5,474	...	42	9	7/1	9	42.00
Medical College of Virginia, Hosp. Div. ★[3,4]	Richmond, Va.	F. B. Mandeville	Rad.	14,853	3,069	170	34	1	.....	9	37.50
Virginia Mason Hospital ★[2]	Seattle, Wash.	T. B. Carlile	Rad.	7,400	1,050	40	36	1	7/1	9-18	100.00
State of Wisconsin General Hospital ★[3,4]	Madison, Wis.	E. A. Pohle	Rad.	27,219	9,325	310	65	5	7/1	9-36	25.00
Columbia Hospital ★[3,4]	Milwaukee	S. A. Morton	Rad.	18,449	3,275	104	48	1	7/1	9-18	50.00

Hospitals, 157; Assistant Residencies and Residencies, 374

20. SURGERY

Army Air Forces Hospitals

The following hospitals of the Army Air Forces have been approved by the Council as offering acceptable residencies in Surgery for a period not to exceed one year. Residency assignments are available to medical officers for periods of six to twelve months.

Regional Hospital	Maxwell Field	Montgomery, Ala.	Regional Hospital	Barksdale Field	Shreveport, La.
Regional Hospital	Davis-Monthan Field	Tucson, Ariz.	Regional Hospital	Westover Field	Chicopee Falls, Mass.
Regional Hospital	Hammer Field	Fresno, Calif.	Regional Hospital	Keesler Field	Biloxi, Miss.
Regional Hospital	Hamilton Field	San Rafael, Calif.	Regional Hospital	Army Air Field	Lincoln, Neb.
Regional and Convalescent Hospital	Army Air Base	Santa Ana, Calif.	Regional Hospital	Mitchel Field	Hempstead, N. Y.
Regional Hospital	Buckley Field	Denver, Colo.	Regional Hospital	Patterson Field	Fairfield, O.
Regional and Convalescent Hospital	Miami District	Miami Beach, Fla.	Regional Hospital	Army Air Field	Sioux Falls, S. D.
Regional Hospital	Army Air Base	Orlando, Fla.	Regional Hospital	Army Air Field	Amarillo, Tex.
Regional Hospital	Drew Field	Tampa, Fla.	Regional Hospital	Army Air Field	Pyote, Tex.
Regional Hospital	Hunter Field	Savannah, Ga.	Regional Hospital	Aviation Cadet Center	San Antonio, Tex.
Regional Hospital	Scott Field	Belleville, Ill.	Regional Hospital	Sheppard Field	Wichita Falls, Tex.
Regional Hospital	Chanute Field	Rantoul, Ill.	Regional Hospital	Kearns ORD	Kearns, Utah
			Regional Hospital	Langley Field	Hampton, Va.
			Regional Hospital	Truax Field	Madison, Wis.

Navy Hospitals

U. S. Naval Hospital ★ Annapolis, Md. U. S. Naval Hospital ★ Bethesda, Md. U. S. Naval Hospital ★ Philadelphia

Numerical and other references will be found on page 405.

20. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies*	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Jefferson and Hillman Hospitals ★	Birmingham, Ala	D. S. Moore	1,070	5,607	80	19	4	1/1, 7/1	9-12	$50.00
Norwood Hospital ★‡	Birmingham, Ala	C. N. Carraway and D. F. Talley	899	9,453	9	2	3	.....	9	150.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company ★	Fairfield, Ala	L. Noland	1,051	10,198	11	..	2	1/1	9-12	200.00
Baptist State Hospital ★	Little Rock, Ark	R. M. Eubanks	4,382	.....	101	34	2	1/1	9-12	125.00
General Hospital of Fresno County ★	Fresno, Calif	C. M. Vanderburgh	551	2,902	36	6	4	7/1	9-12	160.00
California Hospital ★‡	Los Angeles	W. H. Olds	2,876	281	86	36	3	10/1	9-27	200.00
Cedars of Lebanon Hospital ★‡	Los Angeles	L. Felger	5,411	3,218	136	66	2	7/1	9	100.00
Los Angeles County Hospital ★‡	Los Angeles	J. N. Nichols	3,584	9,488	326	125	7	Varies	9-42	157.20
Santa Fe Coast Lines Hospital ★	Los Angeles	.....	1,170	.....	16	5	2	7/1	9-12	175.00
White Memorial Hospital ★	Los Angeles	G. Thomason	1,041	7,456	45	15	2	7/1	9-12	116.00
Highland-Alameda County Hospital ★‡	Oakland, Calif	D. N. Richards and W. W. Crane	581	.....	62	18	2	7/1	9	80.00
Permanente Foundation Hospital ★‡	Oakland, Calif	C. C. Cutting	2,502	30,546	47	18	3	Varies	9	125.00
San Bernardino County Charity Hospital ★	San Bernardino, Calif	C. G. Hilliard	592	2,630	61	25	1	7/1	9-12	190.00
San Diego County General Hospital ★	San Diego, Calif	C. O. Tanner	1,869	3,343	160	24	2	7/1, 10/1	9-12	164.00
Children's Hospital ★‡	San Francisco	A. Kilgore	592[b]	878[b]	...	..	2	.....	9	.....
Franklin Hospital ★‡	San Francisco	T. F. Mullen	1,316	.....	20	7	4	7/1	9-12	100.00
Mary's Help Hospital ★	San Francisco	E. Carlson	1,839	3,159	30	7	1	7/1	9-12	200.00
Mount Zion Hospital ★‡	San Francisco	F. I. Harris	2,030	1,404	53	22	3	7/1	9-18	75.00
St. Luke's Hospital ★‡	San Francisco	A. Weeks	5,155	.....	70	25	1	7/1	9-12	225.00
St. Mary's Hospital ★	San Francisco	E. Butler	1,371	1,169	...	..	2	7/1	9-12	100.00
San Francisco Hospital ★‡	San Francisco	L. Eloesser and H. Brunn	1,458	.....	91	26	10	Varies	9	115.00
Stanford University Hospitals ★‡	San Francisco	F. L. Reichert	1,545	12,063	55	18	5	7/1	9-18	50.00
University of California Hospital ★‡	San Francisco	H. C. Naffziger	1,584	9,792	29	17	6	Varies	9-12	50.00
Santa Clara County Hospital ★	San Jose, Calif	C. Sullivan	794[b]	.....	...	..	1	7/1	9-12	205.00
Santa Barbara Cottage Hospital ★	Santa Barbara, Calif	I. Wills	530	.....	11	9	2	6/1	9-12	100.00
Colorado General Hospital ★	Denver	.....	1,154	5,436	81	54	2	7/1	9-18	70.00
St. Luke's Hospital ★	Denver	H. R. McKeen	4,193[b]	.....	...	..	2	7/1	9	50.00
St. Francis Hospital ★	Hartford, Conn	.....	5,218	.....	50	19	2	Varies	9	.....
Grace Hospital ★	New Haven, Conn	R. Nichols	1,479	122	53	17	4	.....	9	.....
Hospital of St. Raphael ★	New Haven, Conn	W. F. Verdi	1,865	648	95	25	2	Varies	9-24	50.00
New Haven Hospital ★‡	New Haven, Conn	S. Harvey	2,090	9,771	66	..	9	7/1	9-12	‡
Memorial Hospital ★‡	Wilmington, Del	J. G. Spackman	1,020	1,342	28	14	3	.....	9	.....
Central Dispensary and Emergency Hosp. ★‡	Washington, D. C	J. F. Mitchell	3,189	651	77	29	4	4/1	9-12	10.00
Freedmen's Hospital ★‡	Washington, D. C	C. R. Drew	1,077	5,721	72	17	10	1/1	9-60	.....
Gallinger Municipal Hospital ★‡	Washington, D. C	.....	1,420	5,881	70	24	6	.....	9	.....
Garfield Memorial Hospital ★‡	Washington, D. C	H. H. Kerr	3,900	915	130	..	3	7/1	9	75.00
Georgetown University Hospital ★	Washington, D. C	F. Sanderson	1,175	919	42	19	4	7/1	9-12	75.00
Providence Hospital ★	Washington, D. C	F. Sanderson	3,095	1,133	43	17	3	.....	9	.....
Sibley Memorial Hospital ★	Washington, D. C	P. S. Putzki	.....	.....	...	..	3	.....	9-12	75.00
Duval County Hospital ★	Jacksonville, Fla	E. Jelks	492	.....	64	12	3	7/1	9	125.00
James M. Jackson Memorial Hospital ★	Miami, Fla	.....	5,038	.....	156	33	3	7/1	9	83.00
Grady Memorial Hospital ★‡	Atlanta, Ga	B. H. Clifton	3,250	29,264	197	96	13	7/1	9	20.00
St. Joseph's Infirmary ★	Atlanta, Ga	G. P. Huguley	1,939	450	17	4	2	7/1	9-36	125.00
University Hospital ★‡	Augusta, Ga	G. F. Jones Jr.	3,033	2,391	128	10	5	10/1	9-18	35.00
Emory University Hospital ★	Emory University, Ga	L. Grove	12,098	.....	26	6	2	7/1	9-12	50.00
Augustana Hospital ★	Chicago	N. M. Percy	2,459	692	...	..	1	1/1	9-12	25.00
Cook County Hospital ★‡	Chicago	M. Davison	13,310	9,475	923	81	14	1/1, 7/1	9-36	25.00
Grant Hospital ★‡	Chicago	E. W. Fischmann	.....	.....	...	..	1	10/1	9-36	125.00
Illinois Masonic Hospital ★	Chicago	R. B. Malcolm	995	5,195	47	11	1	Varies	9-12	150.00
Mercy Hospital-Loyola University Clinics ★	Chicago	H. A. Oberhelman	2,758	4,143	120	51	3	10/1	9-36	75.00
Michael Reese Hospital ★‡	Chicago	R. B. Bettman	3,031	3,614	94	35	6	Varies	9-36	25.00
Mount Sinai Hospital ★‡	Chicago	.....	2,439	2,306	35	16	2	.....	9	.....
Norwegian-American Hospital ★‡	Chicago	G. T. Murphy	2,985	.....	28	11	1	1/1	9-12	150.00
Passavant Memorial Hospital ★‡	Chicago	L. Davis	1,892	8,205	24	19	6	.....	9	.....
Presbyterian Hospital ★	Chicago	V. C. David	2,237	857	38	23	3	1/1, 7/1	9-36	50.00
Provident Hospital ★‡	Chicago	U. G. Dailey	1,355	1,334	28	10	2	1/1	9	50.00
Research and Educational Hospitals ★	Chicago	W. H. Cole	794	9,443	36	32	3	.....	9-36	55.00
St. Joseph Hospital ★	Chicago	H. McKenna	1,543	1,006	26	8	1	1/1, 10/1	9	125.00
St. Luke's Hospital ★	Chicago	C. G. Shearon	4,134	2,076	115	77	8	7/1	9-36	25.00
University of Chicago Clinics ★‡	Chicago	D. B. Phemister	1,835	13,750	71	51	9	Varies	9-48	25.00
Wesley Memorial Hospital ★‡	Chicago	R. W. McNealy	2,337	.....	37	23	3	1/1	9-12	25.00
Women's and Children's Hospital ★‡	Chicago	P. M. Stetler	348	3,055	5	4	1	Varies	9-36	100.00
Evanston Hospital ★	Evanston, Ill	F. Christopher	3,456	6,713	...	..	1	10/1	9	100.00
St. Francis Hospital ★‡	Evanston, Ill	.....	4,639	.....	78	22	1	Varies	9-12	75.00
Little Company of Mary Hospital ★	Evergreen Park, Ill	.....	979	.....	31	5	2	7/1, 10/1	9-12	100.00
St. Francis Hospital ★‡	Peoria, Ill	W. Blender	1,496	2,258	36	12	2	7/1	9-24	150.00
Indianapolis City Hospital ★	Indianapolis	M. N. Hadley	1,269	6,632	80	23	2	4/1	9-60	30.00
Indiana University Medical Center ★‡	Indianapolis	W. D. Gatch	1,835	4,885	88	43	5	.....	9-36	33.00
Methodist Hospital ★	Indianapolis	H. S. Leonard	4,773[b]	.....	...	..	3	7/1	9-18	80.00
Ball Memorial Hospital ★‡	Muncie, Ind	W. C. Moore	2,008	.....	75	28	1	.....	9-18	150.00
University Hospitals ★‡	Iowa City	F. R. Peterson	3,200	4,068	135	60	24	7/1	9	25.00
University of Kansas Hospitals ★‡	Kansas City, Kan	T. G. Orr	756	3,205	39	23	4	.....	9-36	50.00
St. Francis Hospital ★	Wichita, Kan	A. P. Gearhart	2,871	.....	94	28	1	6/1	9-18	150.00
St. Joseph's Hospital ★	Lexington, Ky	.....	2,462	.....	92	30	3	7/1	9	75.00
Louisville General Hospital ★	Louisville, Ky	H. H. Hagan	1,504	13,051	124	27	15	7/1	9	54.00
St. Joseph Infirmary ★	Louisville, Ky	I. Abell Sr.	6,249	.....	...	..	3	.....	9	75.00
Charity Hospital of Louisiana ★‡	New Orleans	.....	6,418	36,780	400	133	27	Varies	9-48	60.00
Touro Infirmary ★	New Orleans	I. Cohn	2,784	4,797	98	45	3	.....	9	50.00
Baltimore City Hospitals ★	Baltimore	T. B. Aycock	1,180	2,644	180	43	10	7/1	9-12	40.00
Bon Secours Hospital ★‡	Baltimore	T. B. Aycock	972	543	14	6	4	7/1	9	75.00
Church Home and Hospital ★‡	Baltimore	T. S. Cullen	3,167	1,021	59	23	4	7/1	9-12	30.00
Franklin Square Hospital ★	Baltimore	E. S. Johnson	2,343	2,290	45	7	3	10/1	9	100.00
Hospital for Women ★‡	Baltimore	W. Rienhoff	1,745	1,032	14	2	3	4/1	9	50.00
Johns Hopkins Hospital ★‡	Baltimore	A. Blalock	2,909	43,994	128	67	10	7/1	9-48	.....
Maryland General Hospital ★	Baltimore	W. J. Coleman and G. A. Bawden	2,359	1,870	86	7	4	.....	9	.....
Mercy Hospital ★	Baltimore	W. D. Wise	.....	.....	80	12	5	7/1	9-12	50.00
Provident Hospital and Free Dispensary ★	Baltimore	S. McLanahan	641	300	...	..	2	1/1	9-60	75.00
St. Agnes Hospital ★‡	Baltimore	L. C. Cohn	1,686	742	53	12	2	.....	9	.....
St. Joseph's Hospital ★	Baltimore	W. R. Geraghty	2,402	4,041	91	10	5	7/1	9-36	50.00
Sinai Hospital ★‡	Baltimore	.....	1,398	1,138	47	16	6	7/1	9-12	35.00
South Baltimore General Hospital ★	Baltimore	O. S. Lloyd	2,380	3,709	61	11	4	.....	9	.....
Union Memorial Hospital ★	Baltimore	W. A. Fisher	4,611	5,231	112	27	6	7/1	9-36	50.00
University Hospital ★‡	Baltimore	A. M. Shipley	2,700	8,078	87	38	7	7/1	9	50.00
West Baltimore General Hospital ★	Baltimore	N. C. Marvel	910	4,254	22	4	4	6/1	9-36	80.00
Beverly Hospital ★	Beverly, Mass	P. P. Johnson	1,495	2,679	51	33	2	.....	9-36	.....
Beth Israel Hospital ★	Boston	.....	4,034	7,813	77	41	2	7/1	9	41.66

Numerical and other references will be found on page 405.

20. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [5]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Boston City Hospital ★[4]	Boston	S. Fraser	10,340	55,764	525	49	9	7/1	9	$50.00[c]
Children's Hospital ★[4]	Boston	W. E. Ladd	1,576	11,929	46	39	4	.....	9	.....
Lahey Clinic	Boston		.....	.....	...	..	16	.....	9	.....
Massachusetts General Hospital ★	Boston	E. D. Churchill and A. W. Allen	3,157[b]	21,694[b]	103	71	19	.....	9	.....
Massachusetts Memorial Hospitals ★	Boston	H. M. Clute	3,872	2,559	31	20	2	.....	9	.....
Peter Bent Brigham Hospital ★	Boston	F. C. Newton	2,388	30,000	60	..	9	Varies	Varies	.....
Cambridge Hospital ★[4]	Cambridge, Mass.		1,536	1,601	36	16	1	7/1	9-24	100.00
Truesdale Hospital	Fall River, Mass.		2,035	.....	30	20	2	.....	9	.....
Memorial Hospital ★	Worcester, Mass.	B. H. Alton	2,324	510	43	19	1	.....	9	125.00
Worcester City Hospital ★	Worcester, Mass.	B. F. Andrews	2,312	3,647	114	20	2	7/1	9	50.00
University Hospital ★[4]	Ann Arbor, Mich.	F. A. Coller	1,758	8,192	110	65	22	Varies	9	100.85
Alexander Blain Hospital [4]	Detroit	A. W. Blain and I. G. Downer	1,433	14,959	26	10	3	.....	9-48	200.00
Charles Godwin Jennings Hospital ★	Detroit		1,504	.....	15	3	1	7/1	9	200.00
City of Detroit Receiving Hospital ★[4]	Detroit	H. K. Shawan and C. F. Vale	3,835	26,477	281	63	16	7/1	9-27	145.58
Grace Hospital ★	Detroit	C. S. Kennedy	3,399	1,593	61	21	3	7/1	9-36	125.00
Harper Hospital ★[4]	Detroit	A. D. McAlpine	8,976	.....	164	55	9	.....	9	.....
Henry Ford Hospital ★[4]	Detroit	R. D. McClure	7,819	112,261	149	70	17	7/1	9-60	175.00
Mount Carmel Mercy Hospital ★	Detroit	J. E. Watson	3,560	.....	58	20	4	.....	9	.....
Providence Hospital ★	Detroit	E. Dowdle	6,325	.....	106	56	4	.....	9-48	140.00
St. Mary's Hospital ★	Detroit	G. K. Glasgow	5,651	802	97	45	3	Varies	9-36	150.00
Eloise Hospital and Infirmary ★[4]	Eloise, Mich.	R. V. Walker	2,374	4,658	209	48	9	7/1	9-12	160.00
Hurley Hospital ★	Flint, Mich.		1,640	.....	36	9	3	7/1	9	125.00
Blodgett Memorial Hospital ★	Grand Rapids, Mich.		1,010[b]	.....	...	..	1	.....	9	.....
Butterworth Hospital ★[4]	Grand Rapids, Mich.	C. H. Snyder	6,261	.....	98	40	3	5/1, 7/1	9	150.00
St. Mary's Hospital ★	Grand Rapids, Mich.	C. E. Sugg	3,613	330	123	40	2	5/1	9	125.00
St. Mary's Hospital ★	Duluth, Minn.		1,612	108	35	27	1	7/1	9-12	75.00
Minneapolis General Hospital ★[4]	Minneapolis	A. A. Zierold	1,269	5,688	158	39	7	7/1	9-18	91.50[c]
University Hospitals ★[4]	Minneapolis	O. H. Wangensteen	1,154	8,107	77	60	6	7/1	9-36	91.50
Mayo Foundation	Rochester	D. C. Balfour	(See page 405)				135	.....	9	.....
Ancker Hospital ★	St. Paul	A. R. Colvin	1,125	2,072	77	63	3	7/1	9-18	155.00
Charles T. Miller Hospital ★	St. Paul	H. B. Zimmermann	1,872	2,023	...	..	2	7/1	9	.....
St. Louis County Hospital ★	Clayton, Mo.	L. A. Will	1,105	10,280	100	36	4	7/1	9-18	60.00
Ellis Fischel State Cancer Hospital	Columbia, Mo.	E. D. Sugarbaker	1,555	5,349	49	35	4	7/1	9-24	50.00
Kansas City General Hospital ★	Kansas City, Mo.	J. E. Stowers	914	2,751	65	48	2	7/1	9-36	50.00
Research Hospital ★	Kansas City, Mo.	C. J. Hunt	1,028	.....	14	5	2	Varies	9	100.00
St. Luke's Hospital ★	Kansas City, Mo.		4,275	.....	28	22	1	.....	9	.....
St. Mary's Hospital ★	Kansas City, Mo.	M. J. Owens and J. R. McVay	2,171	.....	54	29	2	Varies	9-12	150.00
Barnes Hospital ★	St. Louis	E. A. Graham	1,679	5,557	84	47	17	7/1	9-36	25.00
De Paul Hospital ★	St. Louis	H. A. Hassett	1,089	264	82	10	2	7/1	9	60.00
Homer G. Phillips Hospital ★[4]	St. Louis	R. Elman	1,550	5,834	125	23	5	1/1	9	80.00
Jewish Hospital ★[4]	St. Louis	M. W. Myer	1,515	2,300	51	24	2	7/1	9	75.00
Missouri Baptist Hospital ★	St. Louis	W. S. Wiatt	3,276	.....	...	..	2	7/1	9	70.00
St. Anthony's Hospital ★	St. Louis	F. J. Tainter	2,850	.....	89	33	1	10/1	9	50.00
St. John's Hospital ★	St. Louis	W. P. Glennon	2,688	1,420	100	24	2	6/1	9-24	40.00
St. Louis City Hospital ★[4]	St. Louis	P. Heinbecker	2,202	6,262	221	113	9	7/1	9	80.00
St. Luke's Hospital ★	St. Louis	E. V. Mastin	2,355	.....	...	..	1	7/1	9	75.00
St. Mary's Group of Hospitals ★	St. Louis	L. Rassieur	2,632	7,173	122	52	9	7/1	9	35.00
Bishop Clarkson Memorial Hospital ★	Omaha	C. H. Waters	1,146	.....	23	7	1	7/1	9-12	150.00
Creighton Memorial St. Joseph's Hospital ★[4]	Omaha	C. McMartin	1,830	2,085	65	30	1	7/1	9-24	100.00
University of Nebraska Hospital ★	Omaha		452	.....	36	35	1	.....	9	.....
Cooper Hospital ★	Camden, N. J.	I. E. Delbert	1,739	17,501	171	48	2	7/1	9-36	60.00
West Jersey Homeopathic Hospital ★	Camden, N. J.	H. W. Jack	1,301	2,811	69	14	1	1/1	9	150.00
Jersey City Hospital ★	Jersey City, N. J.	E. Burke and F. B. Berry	4,145	22,990	212	27	6	Varies	9-36	35.00
Mountainside Hospital ★[4]	Montclair, N. J.	V. B. Seidler	2,828	3,553	37	6	1	7/1	9-18	100.00
Burlington County Hospital ★	Mount Holly, N. J.	W. E. Lee	1,066	1,230	39	7	1	.....	9	.....
Albany Hospital ★[4]	Albany, N. Y.	J. L. Donhauser	2,650	2,293	89	51	4	7/1	9-12	25.00
Brooklyn Hospital ★[4]	Brooklyn	E. K. Tanner	2,206	3,281	49	23	2	Varies	9-12	75.00
Coney Island Hospital ★[4]	Brooklyn	D. A. McAteer	2,472	33,319	143	37	2	5/1, 7/1	9	110.00
Cumberland Hospital ★[4]	Brooklyn	H. T. Wikle	2,353	16,941	55	13	2	7/1	9-12	50.00
Greenpoint Hospital ★[4]	Brooklyn	J. Smith	1,417	5,776	56	5	2	4/1	9	110.00
Jewish Hospital ★[4]	Brooklyn	L. M. Davidoff	1,502	2,551	109	28	4	.....	9-48	25.00
Kings County Hospital ★[4]	Brooklyn	J. Tenopyr and R. Barber	6,765	30,760	536	77	6	7/1	9-18	60.00
Long Island College Hospital ★[4]	Brooklyn	E. Goetsch	2,298	8,711	47	9	4	7/1	9-72	25.00
Norwegian Lutheran Deaconesses' Home and Hospital ★[4]	Brooklyn	L. Stork, R. W. Tate and D. Livingstone	1,628	1,135	...	..	1	10/1	9	.....
St. Mary's Hospital ★[4]	Brooklyn		2,365	3,176	32	8	1	7/1	9-27	60.00
Buffalo General Hospital ★	Buffalo	H. A. Smith	3,160	576	137	59	5	7/1	9-12	25.00
Deaconess Hospital ★	Buffalo		3,728	1,341	67	30	1	7/1	9	125.00
Edward J. Meyer Memorial Hospital ★[4]	Buffalo	J. C. Brady	1,488	3,235	145	44	7	7/1	9-60	59.00
Millard Fillmore Hospital ★	Buffalo	H. Hoffman	2,720	.....	47	16	2	7/1	9-12	100.00
Clifton Springs Sanitarium and Clinic	Clifton Springs, N. Y.	A. S. Taylor	961	.....	13	9	2	7/1	9-36	50.00
Mary Imogene Bassett Hospital ★	Cooperstown, N. Y.	J. H. Powers	.....	.....	...	..	1	10/1	9	.....
Meadowbrook Hospital ★	Hempstead, N. Y.	A. S. Warinner and C. A. Hettesheimer	861	.....	62	36	2	7/1	9	110.00
Mary Immaculate Hospital ★	Jamaica, N. Y.	J. M. Scannell	.....	1,168	65	12	2	7/1	9	110.00
Queens General Hospital ★[4]	Jamaica, N. Y.	F. N. Dealy	2,019	13,962	174	64	2	7/1	9-24	110.00
Charles S. Wilson Memorial Hospital ★[4]	Johnson City, N. Y.	F. G. Moore	2,688	.....	33	11	2	7/1	9-12	175.00
New Rochelle Hospital ★	New Rochelle, N. Y.	G. C. Adle	1,736	1,666	56	16	2	7/1	9	100.00
Bellevue Hospital, Div. I—Columbia U.★[4]	New York City	C. J. MacGuire	2,576	12,232	96	37	1	Varies	9-12	100.00
Bellevue Hospital, Div. II—Cornell U.★[4]	New York City	G. Dudley	2,576	11,784	96	36	1	Varies	9-12	100.00
Bellevue Hospital, Div. III—N. Y. U.★[4]	New York City	Arthur Wright	2,844	2,628	123	40	4	Varies	9-12	25.00
Bellevue Hospital, Div. IV—Open Div.★[4]	New York City	A. McQuillan	2,357	10,445	90	32	3	Varies	9-12	25.00
Bronx Hospital ★	New York City		2,065	2,380	54	13	2	.....	9	.....
Flower and Fifth Avenue Hospitals ★[4]	New York City	L. R. Kaufman	1,729	2,661	82	21	4	.....	9-12	100.00
Fordham Hospital ★[4]	New York City	A. Nicoll	.....	.....	...	..	4	7/1	9	60.00
Gouverneur Hospital ★[4]	New York City	J. Girsdansky	646	11,668	58	8	2	.....	9	60.00
Harlem Hospital ★[4]	New York City		.....	.....	...	..	4	.....	9	.....
Hospital for Special Surgery	New York City	C. G. Burdick	1,390	3,790	22	10	4	1/1, 7/1	9-12	50.00
Knickerbocker Hospital ★	New York City	J. V. Bohrer	963	8,184	47	7	1	7/1	9-12	100.00
Lenox Hill Hospital ★[4]	New York City		2,098	.....	61	22	4	7/1	9	25.00
Metropolitan Hospital ★[4]	New York City	L. R. Kaufman	1,055	7,205	114	27	2	7/1	9-12	100.00
Montefiore Hospital for Chronic Diseases ★[4]	New York City		168	.....	31	17	4	1/1, 7/1	9-12	50.00
Morrisania City Hospital ★[4]	New York City	G. E. Milani	1,668	5,920	83	17	3	7/1	9	50.00
Mount Sinai Hospital ★[4]	New York City		.....	.....	...	..	11	1/1, 7/1	9-24	50.00
New York City Hospital ★	New York City	L. W. Crossman	1,341	7,379	124	35	2	7/1	9	60.00
New York Hospital ★[4]	New York City	G. J. Heuer	3,131	58,363	53	58	28	7/1	9+	25.00

Numerical and other references will be found on page 405.

20. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
New York Infirmary for Women and Children ★[4]	New York City	A. Hubert	578	2,199	5	4	2	1/1	9-12	$75.00
New York Polyclinic Medical School and Hospital ★	New York City		2,131	4,234	92	2	8	7/1	9	25.00
New York Post-Graduate Medical School and Hospital ★[4]	New York City	T. H. Russell	2,778	9,974	94	41	20	1/1	9-36	30.00
Presbyterian Hospital ★[5]	New York City	A. O. Whipple	3,646	59,086	130	..	18	.....	9	.....
Roosevelt Hospital ★	New York City		2,964	9,359	135	33	6	7/1	9	.....
St. Luke's Hospital ★	New York City	E. J. Donovan	2,646	1,512	93	37	10	Varies	9-60	50.00
St. Vincent's Hospital ★[4]	New York City	G. R. Stuart and R. P. Sullivan	5,055	7,618	191	69	4	7/1	9-18	25.00
Genesee Hospital ★	Rochester, N. Y.	S. Houck	2,899	2,811	54	15	2	7/1	9-12	100.00
Rochester General Hospital ★[4]	Rochester, N. Y.	H. L. Prince	2,766	4,668	70	52	4	7/1	9-36	75.00
St. Mary's Hospital ★[4]	Rochester, N. Y.	L. F. Simpson	3,973	950	29	12	1	7/1	9-12	125.00
Strong Memorial and Rochester Municipal Hospitals ★[4]	Rochester, N. Y.	J. J. Morton	2,550	12,410	189	137	11	7/1	9-48	41.66
Hospital of the Good Shepherd ★	Syracuse, N. Y.	A. C. Swift	.....	.....	....	..	3	.....	9	.....
Grasslands Hospital ★[4]	Valhalla, N. Y.	G. C. Adie	433	2,556	58	34	3	7/1	9-12	75.00
Charlotte Memorial Hospital ★[4]	Charlotte, N. C.	T. D. Sparrow	1,185	4,030	51	20	6	7/1	9	75.00
Duke Hospital ★[4]	Durham, N. C.	D. Hart	2,329	11,587	64	23	12	Varies	9	83.33
Watts Hospital ★	Durham, N. C.		2,100	932	46	6	3	7/1	9	75.00
Rutherford Hospital	Rutherfordton, N. C.		964	6,833	2	..	1	.....	9	.....
City Hospital ★	Winston-Salem, N. C.	W. L. Grimes	4,623	4,360	98	22	6	.....	9	75.00
North Carolina Baptist Hospital ★[4]	Winston-Salem, N. C.	H. H. Bradshaw	1,110	2,532	25	14	5	7/1	9	41.66
Trinity Hospital ★	Minot, N. D.	A. L. Cameron	.....	.....	...	..	1	.....	9	.....
City Hospital ★	Akron, O.		3,681	.....	125	37	6	.....	9	100.00
Peoples Hospital ★	Akron, O.		.....	.....	...	..	2	.....	9	.....
St. Thomas Hospital ★	Akron, O.	E. C. Banker	1,523	.....	25	1	2	7/1	9-12	125.00
Mercy Hospital ★	Canton, O.	A. W. Warren	3,665	.....	96	24	3	4/1	9	125.00
Christ Hospital ★	Cincinnati	P. W. Sutton	2,074	2,202	100	35	2	7/1	9-18	75.00
Cincinnati General Hospital ★	Cincinnati	M. M. Zinninger	2,920	17,508	338	113	19	7/1	9-72	.....
Deaconess Hospital ★	Cincinnati	W. R. Griess and R. W. Good	2,506	.....	51	9	1	9/1	9	125.00
Good Samaritan Hospital ★	Cincinnati	J. L. DeCourcy	8,079	1,097	90	41	4	7/1	9-48	75.00
Jewish Hospital ★	Cincinnati	J. L. Ransohoff	973	.....	43	23	2	10/1	9-27	175.00
City Hospital ★[4]	Cleveland	C. H. Lenhart	1,959	11,123	203	95	21	.....	9	25.00
Cleveland Clinic Foundation Hospital ★	Cleveland	T. E. Jones	2,222	.....	...	..	12	.....	9+	100.00
Fairview Park Hospital ★	Cleveland	H. W. Masenhimer	1,014	1,260	24	4	2	7/1	9	150.00
Mount Sinai Hospital ★[4]	Cleveland	A. Strauss	2,075	880	58	24	3	7/1	9	75.00
St. Alexis Hospital ★	Cleveland	J. F. Corrigan	5,378	2,869	94	12	6	7/1	9	120.00
St. John's Hospital ★[4]	Cleveland	F. T. Gallagher	1,800	.....	45	12	3	7/1	9	100.00
St. Luke's Hospital ★	Cleveland	T. A. Willis	3,274	6,063	91	19	4	7/1	9-48	50.00
St. Vincent Charity Hospital ★	Cleveland	E. P. Neary	5,098	4,911	107	24	7	.....	9	75.00
University Hospitals ★[4]	Cleveland	C. H. Lenhart	3,437[b]	9,793[b]	...	..	16	7/1	9	.....
St. Francis Hospital ★	Columbus, O.	I. B. Harris	1,690	1,086	113	29	2	.....	9	.....
Starling-Loving University Hospital ★[4]	Columbus, O.	V. A. Dodd	1,455	2,172	65	25	10	7/1	9	50.00
Miami Valley Hospital ★	Dayton, O.	R. C. Austin	3,225	.....	82	30	2	7/1	9	75.00
Huron Road Hospital ★[4]	East Cleveland, O.		2,803	354	80	28	3	.....	9	60.00
Maumee Valley Hospital ★	Toledo, O.	E. J. McCormick	682	2,250	88	23	1	.....	9	.....
Mercy Hospital ★	Toledo, O.	T. F. Heatley	3,750	.....	78	10	1	7/1, 10/1	9	100.00
St. Vincent's Hospital ★[4]	Toledo, O.	F. M. Douglass	3,773	4,081	82	..	2	.....	9	.....
St. Elizabeth's Hospital ★[4]	Youngstown, O.	J. M. Ranz	2,318	271	54	3	2	.....	9	.....
St. Anthony Hospital ★	Oklahoma City	R. M. Howard	5,725	....	...	..	2	.....	9	75.00
University Hospitals ★	Oklahoma City	C. E. Clymer	1,031	3,568	77	35	2	7/1	9-18	75.00
Good Samaritan Hospital ★	Portland, Ore.		872	6,314	22	14	1	Varies	9	175.00
University of Oregon Medical School Hospitals and Clinics ★[4]	Portland, Ore.	T. M. Joyce	1,012	4,257	93	46	4	7/1	9-18	75.00
Abington Memorial Hospital ★	Abington, Pa.	D. B. Pfeiffer	2,497	2,248	68	26	2	7/1	9-18	30.00
Allentown Hospital ★	Allentown, Pa.		2,453	2,419	...	..	2	7/1	9-18	100.00
Sacred Heart Hospital ★	Allentown, Pa.		2,804	4,762	112	41	1	10/1	9-36	200.00
St. Luke's Hospital ★[4]	Bethlehem, Pa.	W. L. Estes Jr.	2,432	.....	118	61	2	7/1	9-24	100.00
Bryn Mawr Hospital ★	Bryn Mawr, Pa.		419	.....	18	7	2	7/1	9	100.00
George F. Geisinger Memorial Hospital ★[4]	Danville, Pa.	H. F. Foss	1,806	10,653	57	15	3	7/1	9-18	75.00
Germantown Dispensary and Hospital ★	Philadelphia	W. E. Lee and W. B. Swartley	2,823	14,394	72	22	2	7/1	9-36	50.00
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	W. Lee and W. Bates	1,145	12,565	50	21	2	7/1	9-24	.....
Hahnemann Hospital ★[4]	Philadelphia	W. L. Martin	1,600	11,300	107	..	2	7/1	9-18	50.00
Hospital of the Protestant Episcopal Church ★[4]	Philadelphia	E. A. Crossan and I. M. Boykin	2,936[b]	11,359[b]	...	..	2	7/1	9	100.00
Hosp. of the University of Pennsylvania ★[4]	Philadelphia	E. L. Eliason	3,295	21,975	36	40	7	7/1	9-60	.....
Hospital of the Woman's Medical College of Pennsylvania ★[4]	Philadelphia	J. S. Rodman	1,218	.....	23	11	1	7/1	9-36	50.00
Jefferson Medical College Hospital ★	Philadelphia	T. A. Shallow and G. P. Muller	2,966	10,499	...	..	3	1/1, 10/1	9	50.00
Jewish Hospital ★[4]	Philadelphia		3,271	1,070	106	47	1	.....	9-18	75.00
Lankenau Hospital ★	Philadelphia	J. M. Deaver	1,080	6,184	37	17	1	7/1	9-36	50.00
Mount Sinai Hospital ★[4]	Philadelphia	B. Lipshutz	685	872	16	8	1	1/1	9	100.00
Pennsylvania Hospital ★	Philadelphia	T. J. Summey and A. A. Walkling	1,668	11,493	76	34	4	7/1	9-18	20.00
Philadelphia General Hospital ★[4]	Philadelphia		2,609	.....	198	..	3	Varies	9	93.33
Presbyterian Hospital ★	Philadelphia	W. L. Cariss	1,387[b]	7,897[b]	...	..	1	7/1	9	50.00
Temple University Hospital ★[4]	Philadelphia	W. L. Cariss	2,142	2,137	80	31	4	7/1	9-36	52.00
Woman's Hospital ★[4]	Philadelphia	C. M. Smyth Jr.	745	2,935	14	8	3	7/1	9-36	50.00
Allegheny General Hospital ★	Pittsburgh	J. C. Burt	2,468	4,602	98	12	2	7/1	9	100.00
Children's Hospital [4]	Pittsburgh	W. O. Sherman	830	1,841	14	5	1	Varies	9	75.00
Mercy Hospital ★[4]	Pittsburgh	J. P. Griffith	5,047	.....	101	32	1	7/1	9-36	.....
Montefiore Hospital ★[4]	Pittsburgh	H. Frankenstein	1,092	2,977	28	8	1	.....	9	.....
Presbyterian Hospital ★[4]	Pittsburgh	E. W. Meredith	1,047	.....	33	14	2	7/1	9-36	50.00
St. Francis Hospital ★	Pittsburgh		2,212	460	40	6	2	10/1	9-36	80.00
Reading Hospital ★[4]	Reading, Pa.	W. H. Lebkicher	.....	....	82	50	1	7/1	9-12	125.00
Robert Packer Hospital ★	Sayre, Pa.	D. Guthrie	1,510	4,341	42	20	2	7/1	9-24	125.00
York Hospital ★	York, Pa.	J. F. Bacon	950	870	92	15	1	.....	9	.....
Roper Hospital ★	Charleston, S. C.	F. F. Kredel	2,194	13,898	72	38	6	7/1	9-27	50.00
Baroness Erlanger Hospital ★	Chattanooga, Tenn.	A. M. Patterson	1,876	2,690	72	10	3	.....	9	.....
John Gaston Hospital ★	Memphis, Tenn.	J. L. McGehee	2,119	9,023	146	32	3	.....	9	.....
George W. Hubbard Hospital of Meharry Medical College ★	Nashville, Tenn.	M. Walker	734	3,373	40	11	3	1/1	9	75.00
Nashville General Hospital ★[4]	Nashville, Tenn.	C. Adams	1,425	12,826	62	3	4	.....	9	.....
St. Thomas Hospital ★	Nashville, Tenn.	L. W. Edwards	4,534	.....	91	30	3	7/1	9-18	125.00

Numerical and other references will be found on page 405.

20. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated [6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies [8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Vanderbilt University Hospital ★[4]	Nashville, Tenn	B. Brooks	2,234	12,325	59	37	7	7/1	9	.....
Baylor University Hospital ★[4]	Dallas, Tex	S. D. Weaver	1,438	643	23	6	3	1/1	9	$50.00
Parkland Hospital ★[4]	Dallas, Tex	L. Hudson	1,297[b]	9,604[b]	..	..	4	.....	9	50.00
St. Paul's Hospital ★	Dallas, Tex	O. W. Gibbons	2,741	.....	40	9	2	.....	9	.....
John Sealy Hospital ★[4]	Galveston, Tex	A. O. Singleton	894	3,899	45	21	6	Varies	9	50.00
Hermann Hospital ★[4]	Houston, Tex	J. L. Taylor	978	1,452	27	6	3	1/1	9-36	50.00
Jefferson Davis Hospital ★[4]	Houston, Tex	J. H. Wootters	1,211	2,142	95	24	3	4/1	9	75.00
St. Joseph's Infirmary [4]	Houston, Tex	G. W. Waldron	2,393	.....	166	60	3	.....	9	125.00
Southern Pacific Hospital [4]	Houston, Tex	J. L. Taylor	639	7,137	17	4	2	7/1	9-24	100.00
Scott and White Hospital ★[4]	Temple, Tex		2,810	.....	33	11	5	Varies	Varies	250.00
Salt Lake County General Hospital ★[4]	Salt Lake City	P. B. Price	471	1,449	22	15	2	.....	9-18	50.00
Mary Fletcher Hospital ★[4]	Burlington, Vt	A. G. Mackay	1,536	235	36	18	2	7/1	9-12	100.00
University of Virginia Hospital ★[4]	Charlottesville, Va	E. P. Lehman	1,934	7,026	64	23	20	7/1	9	25.00
Chesapeake and Ohio Hospital ★[4]	Clifton Forge, Va	J. M. Emmett	2,671	4,871	25	11	3	5/1	9	60.00
Norfolk General Hospital ★	Norfolk, Va		1,717	.....	27	3	1	.....	9	.....
Johnston-Willis Hospital ★[4]	Richmond, Va	F. S. Johns	3,080	.....	25	6	2	7/1	9-12	75.00
Medical College of Virginia, Hosp. Div. ★[4]	Richmond, Va	I. A. Bigger	2,668	5,531	134	36	7	7/1	9	37.50
Jefferson Hospital ★	Roanoke, Va	H. H. Trout	1,967	.....	55	12	2	10/1	9-12	150.00
King County Hospital ★	Seattle, Wash	R. D. Forbes	3,228	1,401	98	66	4	7/1	9-27	90.00
Providence Hospital ★	Seattle, Wash		2,375	.....	67	11	3	7/1	9-36	150.00
Swedish Hospital ★	Seattle, Wash		871	.....	38	12	1	4/1, 7/1	9	50.00
Virginia Mason Hospital ★	Seattle, Wash	J. W. Baker	3,298	.....	27	16	2	7/1	9-18	100.00
Northern Permanente Foundation ★	Vancouver, Wash	E. D. Wiley	.....	5,216	1	0	1	10/1	9	150.00
Beckley Hospital	Beckley, W. Va	J. W. Bolen	582	3,744	19	6	2	1/1	9-12	100.00
Charleston General Hospital ★[4]	Charleston, W. Va	J. E. Cannaday	1,832	2,066	57	30	4	7/1	9-36	50.00
Chesapeake and Ohio Hospital ★	Huntington, W. Va	R. J. Wilkinson	.....	.....	...	..	1	.....	9	.....
St. Mary's Hospital ★	Huntington, W. Va	J. H. Steenberger	2,207	.....	71	38	1	.....	9	100.00
Laird Memorial Hospital	Montgomery, W. Va	W. R. Laird	1,787	5,438	35	7	2	7/1	9-24	100.00
State of Wisconsin General Hospital ★[4]	Madison, Wis	E. R. Schmidt	1,660	2,045	89	56	9	4/1, 7/1	9-36	25.00
Columbia Hospital ★	Milwaukee	R. E. Morter	893	.....	36	15	1	7/1	9-18	50.00
Milwaukee Children's Hospital [4]	Milwaukee		(See Pediatrics)		16	6	1	.....	9	.....
Milwaukee County Hospital ★[4]	Milwaukee	J. M. King	8,475	5,046	104	20	6	7/1	9-36	65.32
St. Joseph's Hospital ★	Milwaukee	F. Stratton	5,725	.....	74	15	2	7/1	9-24	100.00
St. Luke's Hospital ★[4]	Milwaukee	H. J. Gramling	2,178[b]	407[b]	...	..	1	.....	9	.....
St. Mary's Hospital ★	Milwaukee		.....	.....	...	..	1	.....	9	.....

Hospitals, 308; Assistant Residencies and Residencies, 1,420

21. THORACIC SURGERY

Olive View Sanatorium [4]	Olive View, Calif	J. Skillen	233	.....	...	..	3	Varies	9	$225.00
Norwich State Tuberculosis Sanatorium (Uncas-on-Thames)	Norwich, Conn	R. G. Urquhart	.....	365	...	..	2	Varies	9	183.66
City of Chicago Municipal Tuberculosis Hospital	Chicago	R. M. Davison	209	431	...	..	2	.....	9	.....
Sanatorium Division of the Boston City Hospital	Boston	H. Binney	75	.....	1	..	1	Varies	9	150.00
University Hospital ★[4]	Ann Arbor, Mich	J. Alexander	418	1,103	27	19	6	.....	9-24	.....
Herman Kiefer Hospital	Detroit	E. J. O'Brien	736	1,519	16	9	4	Varies	9-24	175.00
Mississippi State Sanatorium	Sanatorium, Miss	J. S. Harter	317	84	7	0	1	.....	9-24	125.00
Barnes Hospital ★	St. Louis	E. A. Graham	351	.....	32	19	1	.....	9	.....
Hudson County Tuberculosis Hospital	Jersey City, N. J	F. Bortone	44	(See Tuberculosis)			1	.....	9	.....
Kings County Hospital ★[4]	Brooklyn	H. C. Maier	171	374	23	4	1	7/1	9-18	110.00
Edward J. Meyer Memorial Hospital ★[4]	Buffalo	J. C. Brady	.....	.....	...	..	1	.....	9-36	59.00
Herman M. Biggs Memorial Hospital [4]	Ithaca, N. Y		(See Tuberculosis)				2	.....	9-36	150.00
Triboro Hospital [4]	Jamaica, N. Y	H. C. Maier and H. W. Louria	(See Tuberculosis)				4	.....	9-12	50.00
Mount Morris Tuberculosis Hospital	Mount Morris, N. Y		83	.....	...	..	1	7/1	9-24	150.00
Bellevue Hospital, Div. I—Columbia U. ★[4]	New York City	A. Lambert	166	215	29	12	4	Varies	9-24	83.33
Metropolitan Hospital ★[4]	New York City	S. A. Thompson	43	1,450	24	11	1	1/1	9-12	100.00
Homer Folks Tuberculosis Hospital	Oneonta, N. Y		179	18	5	4	2	7/1	9-24	200.00
Sea View Hospital [4]	Staten Island, N. Y	L. R. Davidson	117	.....	30	10	3	1/1, 7/1	9	110.00
North Carolina Baptist Hospital ★[4]	Winston-Salem, N. C	H. H. Bradshaw	105	.....	7	5	2	7/1	9	41.66
City Hospital ★	Cleveland		(See Surgery)				1	.....	9	.....
University of Oregon Medical School Hospitals and Clinics ★[4]	Portland, Ore	R. Matson	215	6,270	11	11	3	7/1	9-18	75.00
Muirdale Sanatorium	Milwaukee		(See Tuberculosis)				1	.....	9	.....

Hospitals, 22; Assistant Residencies and Residencies, 47

22. TRAUMATIC SURGERY

Morrisania City Hospital ★[4]	New York City		2,225[b]	8,032[b]	...	..	2	.....	9	$50.00
Charleston General Hospital ★	Charleston, W. Va		(See Surgery)				1	.....	9	.....

23. TUBERCULOSIS

Los Angeles Sanatorium [4]	Duarte, Calif	J. Segal	390	2,351	60	17	4	.....	9	.....
Arroyo Del Valle Sanatorium	Livermore, Calif	C. Bush	269	.....	33	0	2	.....	9-12	$105.00
Barlow Sanatorium [4]	Los Angeles	H. W. Bosworth	175	1,575	2	1	2	7/1	9-12	100.00
Los Angeles County Hospital ★[4]	Los Angeles	C. Howson	1,290	2,493	495	37	3	Varies	9	.....
Pottenger Sanatorium and Clinic [4]	Monrovia, Calif	F. M. Pottenger	250	1,695	17	3	1	.....	9	.....
Bret Harte Sanatorium	Murphys, Calif	E. P. Smart	331	2,510	...	..	2	7/1	9-24	339.00
Olive View Sanatorium [4]	Olive View, Calif	W. R. Oechsli	1,787	.....	57	24	2	Varies	9	175.00
San Diego County General Hospital ★	San Diego, Calif	R. H. Sundberg	188	2,020	75	23	1	.....	9-12	.....
San Francisco Hospital ★[4]	San Francisco	S. M. Farber	721	.....	219	56	3	.....	9	115.00
Santa Clara County Hospital ★	San Jose, Calif	G. Scarborough	152	.....	...	..	2	.....	9	.....
Fairmont Hospital of Alameda County	San Leandro, Calif		197[b]	.....	...	..	2	7/1	9	105.00
Denver General Hospital ★	Denver	J. A. Cremer	130	4,698	48	9	1	.....	9-12	50.00
National Jewish Hospital [4]	Denver	C. J. Kaufman	383	3,189	24	19	8	1/1, 7/1	9-36	200.00
Sanatorium of the Jewish Consumptives' Relief Society	Spivak, Colo	A. L. Briskman	369	2,415	21	5	4	Varies	9	100.00
Undercliff, Meriden State Tuberculosis Sanatorium [4]	Meriden, Conn	C. B. Gibson	717	2,391	113	25	2	7/1	9-24	75.00
Norwich State Tuberculosis Sanatorium (Uncas-on-Thames)	Norwich, Conn	W. H. Weidman	720	1,988	71	15	6	Varies	9	183.66
Laurel Heights State Tuberculosis Sanatorium	Shelton, Conn	E. J. Lynch	640	1,791	60	5	2	7/1	9	75.00
Gaylord Farm Sanatorium [4]	Wallingford, Conn	D. R. Lyman	333	3,000	4	0	2	Varies	9	100.00

Numerical and other references will be found on page 405.

23. TUBERCULOSIS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Tuberculosis Sanatorium (Glenn Dale, Md. P. O.)	Washington, D. C.	D. L. Finucane	1,238	.....	133	38	9	Varies	9-60	$266.66
University of Chicago Clinics ★	Chicago	R. G. Bloch	.....	725	...	..	1	Varies	9-24	25.00
Macon County Tuberculosis Sanatorium [4]	Decatur, Ill.	D. I. Loewen	146	6,857	8	7	1	1/1	9-12	100.00
Pleasant View Sanatorium	East St. Louis, Ill.	R. Bosworth	173	6,653	15	0	1	7/1	12-24	150.00
Peoria Municipal Tuberculosis Sanatorium [4]	Peoria, Ill.	M. Pollak	247	4,374	29	17	2	.....	9	.....
Rockford Municipal Tuberculosis Sanatorium [4]	Rockford, Ill.	W. J. Bryan	242	.....	18	2	1	8/1	9-36	160.00
Lake County Tuberculosis Sanatorium [4]	Waukegan, Ill.	C. K. Petter	315	4,000	46	27	1	1/1, 7/1	9-24	.....
Boehne Tuberculosis Hospital [4]	Evansville, Ind.	P. D. Grimm	318	3,485	47	45	2	Varies	9-24	200.00
Indianapolis City Hospital ★	Indianapolis	J. H. Stygall	313	2,026	66	3	1	4/1	9-12	30.00
Sunnyside Sanatorium [4]	Indianapolis	F. L. Jennings	235	1,118	43	16	1	Varies	9-24	100.00
State Sanatorium [4]	Oakdale, Ia.	W. M. Spear	706	.....	71	4	1	.....	9	.....
Western Maine Sanatorium [4]	Greenwood Mt., Me.	L. Adams	261	582	24	10	1	Varies	9	.....
Baltimore City Hospitals ★	Baltimore	L. M. Serra	500	.....	195	67	4	4/1	9-12	40.00
Sanatorium Division of Boston City Hosp.	Boston	J. A. Foley	1,054	.....	213	..	5	Varies	9	150.00
Rutland State Sanatorium	Rutland, Mass.	P. Dufault	491	.....	45	4	1	.....	9	.....
Norfolk County Hospital	S. Braintree, Mass.	N. R. Pillsbury	222	.....	29	2	3	.....	9-24	200.00
Middlesex County Sanatorium [4]	Waltham, Mass.	S. H. Remick	602	14,329	108	38	2	.....	9-24	200.00
Westfield State Sanatorium [4]	Westfield, Mass.	R. Morgan	225	3,726	49	2	1	.....	9	162.96
Belmont Hospital [4]	Worcester, Mass.	A. D. Ward	272	2,548	64	15	2	.....	9	133.00
University Hospital ★[4]	Ann Arbor, Mich.	J. Barnwell	58	993	4	3	2	Varies	9	100.85
American Legion Hospital	Battle Creek, Mich.	L. C. Manni	368	.....	43	..	1	.....	9	.....
Herman Kiefer Hospital [4]	Detroit	P. T. Chapman	1,784	42,052	289	105	15	7/1	9-12	200.00
Michigan State Sanatorium [4]	Howell, Mich.	E. W. Laboe	782	1,020	113	1	4	Varies	9	287.50
Ingham Sanatorium [4]	Lansing, Mich.	C. J. Stringer	310	5,352	18	0	2	7/1	9-24	200.00
Morgan Heights Sanatorium	Marquette, Mich.	R. F. Berry	137	.....	15	1	1	.....	9	.....
William H. Maybury Sanatorium [4]	Northville, Mich.	H. S. Willis	1,573	.....	196	92	3	.....	9	.....
Oakland County Tuberculosis Hospital [4]	Pontiac, Mich.	A. S. Kimball Jr.	420	4,245	40	8	3	7/1	9-48	200.00
Nopeming Sanatorium [4]	Nopeming, Minn.	G. A. Hedberg	547	4,007	55	29	2	.....	9-24	100.00
Glen Lake Sanatorium [4]	Oak Terrace, Minn.	E. S. Mariette	961	5,503	...	..	4	Varies	9	25.00
Mississippi State Sanatorium	Sanatorium, Miss.	H. Boswell	1,150	2,004	34	0	3	.....	9-24	125.00
Kansas City Municipal Tuberculosis Hosp.	Kansas City, Mo.	M. J. Noon	330	.....	63	46	3	1/1	9-27	50.00
Robert Koch Hospital	Koch, Mo.	G. D. Kettelkamp	761	.....	92	32	8	.....	9	.....
Homer G. Phillips Hospital ★	St. Louis	A. Goldman	229	114	98	15	2	1/1	9	80.00
Mount St. Rose Sanatorium	St. Louis	J. L. Mudd	301	1,883	30	12	1	7/1	9	35.00
New Jersey Sanatorium for Tuberculous Diseases	Glen Gardner, N. J.	A. J. Stolow	680	1,612	9	4	3	.....	9	166.66
Hudson County Tuberculosis Hospital and Sanatorium	Jersey City, N. J.	B. S. Pollak	1,020	12,749	161	25	5	.....	9	.....
Essex Mountain Sanatorium	Verona, N. J.	B. M. Harman	737	4,546	172	23	2	.....	9	200.00
Albany Hospital ★[4]	Albany, N. Y.	R. J. Erickson	259	2,070	56	23	2	7/1	9-12	25.00
Montefiore Hospital Country Sanatorium [4]	Bedford Hills, N. Y.	M. Pinner	441	.....	1	..	4	1/1	9-12	100.00
Kings County Hospital ★[4]	Brooklyn	C. Hamilton	912	7,181	98	1	3	7/1	9-18	110.00
Kingston Avenue Hospital [4]	Brooklyn	F. Murray	201	.....	37	9	2	7/1	9	100.00
Edward J. Meyer Memorial Hospital ★[4]	Buffalo	J. H. Donnelly	743	2,144	208	35	3	7/1	9-36	59.00
Nassau County Sanatorium	Farmingdale, N. Y.	J. C. Walsh	527	7,005	54	17	4	7/1	9-24	180.00
Herman M. Biggs Memorial Hospital [4]	Ithaca, N. Y.	N. S. Lincoln	410	5,027	43	22	3	.....	9-36	150.00
Triboro Hospital [4]	Jamaica, N. Y.	R. H. Bennett	1,081	9,982	139	37	14	.....	9-12	30.00
Mount Morris Tuberculosis Hospital [4]	Mount Morris, N. Y.	A. M. Stokes	259	5,574	38	17	3	7/1	9-24	150.00
Bellevue Hospital, Div. I—Columbia U. ★[4]	New York City	J. B. Amberson	2,840	9,914	245	116	13	Varies	9-36	83.33
Lenox Hill Hospital ★[4]	New York City	G. Thorburn	89	.....	4	..	1	7/1	9	50.00
Metropolitan Hospital ★[4]	New York City	G. G. Ornstein	559	3,490	241	13	7	1/1	9-12	100.00
Montefiore Hospital for Chronic Diseases ★[4]	New York City		405	.....	102	42	4	1/1, 7/1	9-12	50.00
Homer Folks Tuberculosis Hospital [4]	Oneonta, N. Y.	R. Horton	382	7,140	26	11	4	7/1	Varies	200.00
Municipal Sanatorium [4]	Otisville, N. Y.	J. S. Edlin	1,436	.....	6	4	7	.....	9	.....
New York State Hospital	Ray Brook, N. Y.	H. A. Bray	746	5,099	28	19	4	.....	9	.....
Iola-Monroe County Tuberculosis Sanat. [4]	Rochester, N. Y.	E. Bridge	701	20,574	87	31	7	7/1	9-24	187.50
Schenectady County Tuberculosis Hospital [4]	Schenectady, N. Y.	J. M. Blake	231	2,210	17	3	2	Varies	9-12	100.00
Sea View Hospital [4]	Staten Island, N. Y.	G. G. Ornstein	3,882	.....	672	46	21	1/1, 7/1	9	110.00
Trudeau Sanatorium [4]	Trudeau, N. Y.	F. H. Heise	435	.....	5	1	4	Varies	9-12	25.00
Grasslands Hospital ★[4]	Valhalla, N. Y.	W. G. Childress	542	1,689	86	37	8	Varies	9	.....
Jefferson County Sanatorium [4]	Watertown, N. Y.	S. E. Simpson	113	2,454	9	6	1	7/1	9-36	100.00
Dunham Hospital [4]	Cincinnati	J. H. Skaviem	1,006	2,711	185	38	6	.....	9	.....
City Hospital ★[4]	Cleveland	R. C. McKay	1,270	.....	308	53	4	.....	9	90.00
Franklin County Tuberculosis Hospital	Columbus, O.	M. D. Miller	622	.....	83	49	5	7/1	9-36	150.00
Sunny Acres, Cuyahoga County Tuberculosis Hospital	Warrensville, O.	R. H. Browning	807	18,070	24	7	6	7/1	9	225.00
Eagleville Sanatorium for Consumptives	Eagleville, Pa.	A. J. Cohen	399	6,778	19	..	2	.....	9	.....
Germantown Dispensary and Hospital ★	Philadelphia	F. M. McPhedran	.....	.....	...	..	1	7/1	9-36	.....
White Haven Sanatorium [4]	White Haven, Pa.	C. A. Heiken	355	.....	55	8	2	3/1	9	100.00
State Sanatorium [4]	Wallum Lake, R. I.	U. E. Zambarano	774	5,442	125	19	2	Varies	9	50.00
Pine Breeze Sanatorium	Chattanooga, Tenn.	W. D. Rosborough	572	.....	67	0	2	.....	9	60.00
Davidson County Tuberculosis Hospital	Nashville, Tenn.	R. R. Crowe	585	9,987	72	15	3	7/1	9-18	150.00
Woodmen of the World War Mem. Hosp.	San Antonio, Tex.	R. G. McCorkle	200	.....	8	3	1	9/1	9-12	.....
King County Tuberculosis Hospital [4]	Seattle, Wash.	J. H. Fountain	358	2,420	43	3	1	7/1	9-36	250.00
Hopemont Sanitarium [4]	Hopemont, W. Va.	D. Salkin	920	2,300	67	26	4	.....	9-36	175.00
Muirdale Sanatorium [4]	Milwaukee	A. V. Cadden	1,086	1,193	131	23	4	.....	9-24	.....
Wisconsin State Sanatorium [4]	Statesan, Wis.	R. H. Schmidt Jr.	259	.....	17	9	3	.....	9	200.00

Hospitals, 92; Assistant Residencies and Residencies, 320

24. UROLOGY

Jefferson and Hillman Hospitals ★	Birmingham, Ala.	W. F. Scott	325	5,016	34	9	2	Varies	9-24	$50.00
Los Angeles County Hospital ★[4]	Los Angeles	G. F. Schenck	1,637	6,278	195	65	5	Varies	9-36	157.20
White Memorial Hospital ★	Los Angeles	R. W. Barnes	653	5,344	24	13	1	7/1	9-12	116.00
Franklin Hospital ★	San Francisco	F. Hinman	572	.....	16	4	4	7/1	9	100.00
San Francisco Hospital ★[4]	San Francisco	D. R. Smith	358	.....	30	9	1	.....	9	115.00
Stanford University Hospitals ★[4]	San Francisco	J. R. Dillon	589	3,805	12	1	2	7/1	9-18	50.00
University of California Hospitals ★[4]	San Francisco	F. Hinman	345	7,509	10	6	1	Varies	9-12	50.00
New Haven Hospital ★[4]	New Haven, Conn.	C. Deming	485	2,230	18	..	2	7/1	9-12	a
Gallinger Municipal Hospital ★[4]	Washington, D. C.		360	998	23	13	2	7/1	9	.....
St. Vincent's Hospital ★	Jacksonville, Fla.	R. B. McIver	438	.....	27	6	1	.....	9	150.00
Grady Memorial Hospital ★[4]	Atlanta, Ga.	E. Floyd	493	5,190	42	4	4	7/1	9	20.00
Cook County Hospital ★	Chicago	H. Culver	1,524	.....	238	27	2	1/1, 7/1	9-36	25.00
Michael Reese Hospital ★[4]	Chicago	H. Rolnick	395	1,650	15	8	2	.....	9-36	25.00
Presbyterian Hospital ★	Chicago	H. L. Kretschmer	953	2,439	16	13	2	7/1	9-12	50.00
St. Luke's Hospital ★	Chicago	H. Culver	608	1,408	27	16	3	7/1	9-36	25.00
University of Chicago Clinics ★	Chicago	C. B. Huggins	274	5,918	12	9	2	Varies	9-24	25.00

Numerical and other references will be found on page 405.

24. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated[6]	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies[8]	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Indianapolis City Hospital ★	Indianapolis	W. P. Morton	285	1,440	31	9	1	4/1	9-24	$30.00
University Hospitals ★[4]	Iowa City	N. G. Alcock	1,558	1,505	97	26	5	7/1	9	25.00
Charity Hospital of Louisiana ★[4]	New Orleans		1,958	10,460	80	39	9	Varies	9-36	60.00
Touro Infirmary ★	New Orleans	E. Burns	550	2,179	33	21	1	.....	9	50.00
Johns Hopkins Hospital ★	Baltimore	J. A. C. Colston	1,018	4,556	53	37	3	7/1	9	.....
Beth Israel Hospital ★	Boston		377	1,876	...	..	1	7/1	9	41.66
Boston City Hospital ★[4]	Boston	H. H. Howard	516	7,153	51	13	2	7/1	9	50.00[c]
Lahey Clinic	Boston		.....	.....	...	..	4	.....	9	.....
Massachusetts General Hospital ★	Boston	G. G. Smith	536[b]	10,539[b]	13	10	3	.....	9	.....
Massachusetts Memorial Hospitals ★	Boston	S. N. Vose	.....	1,048	12	10	1	7/1	9	.....
University Hospital ★[4]	Ann Arbor, Mich.	R. M. Nesbit	1,255	8,108	30	16	6	Varies	9	100.85
City of Detroit Receiving Hospital ★	Detroit	W. E. Keane and E. G. Martin	873	5,971	83	25	2	7/1	9-18	145.58
Grace Hospital ★	Detroit	H. W. Plaggemeyer	1,001	269	25	6	1	7/1	9-36	125.00
Harper Hospital ★[4]	Detroit	F. H. Cole	.....	.....	22	7	1	.....	9	.....
Henry Ford Hospital ★[4]	Detroit	J. K. Ormond	526	12,107	18	9	3	7/1	9-36	175.00
Eloise Hospital and Infirmary ★[4]	Eloise, Mich.	W. L. Sherman	533	1,899	83	31	4	7/1	9-12	160.00
University Hospitals ★[4]	Minneapolis	C. D. Creevy	685	2,441	25	13	1	7/1	9-36	91.50
Mayo Foundation	Rochester, Minn.	W. F. Braasch and S. J. Thompson	(See this page)				12	.....	9	.....
Ancker Hospital ★	St. Paul	F. E. B. Foley	326	1,726	34	24	1	7/1	9	80.00
Charles T. Miller Hospital ★	St. Paul	F. E. B. Foley	439	714	...	..	1	7/1	9	.....
Kansas City General Hospital ★	Kansas City, Mo.	R. L. Hoffman	201	854	32	21	1	.....	9-24	50.00
Homer G. Phillips Hospital ★	St. Louis	R. Deakin	454	.....	37	7	2	1/1	9	80.00
St. Louis City Hospital ★[4]	St. Louis	G. Carroll	465	1,690	64	30	2	7/1	9	80.00
St. Mary's Group of Hospitals ★	St. Louis	C. E. Burford	560	2,207	28	14	3	7/1	9	35.00
Atlantic City Hospital ★	Atlantic City, N. J.	C. H. deT. Shivers	206[b]	6,265[b]	...	..	1	.....	9	.....
Bayonne Hospital and Dispensary ★	Bayonne, N. J.	S. R. Woodruff	674	211	13	5	3	7/1	9-12	.....
Jersey City Hospital ★	Jersey City, N. J.	E. J. Daly	564	3,089	39	10	4	Varies	9-12	35.00
Newark City Hospital ★	Newark, N. J.	C. R. O'Crowley	346[b]	.....	...	..	1	.....	9	.....
Albany Hospital ★[4]	Albany, N. Y.	J. E. Heslin	876	1,252	33	16	3	7/1	9-12	25.00
Kings County Hospital ★	Brooklyn	F. L. Senger	1,302	2,254	181	14	2	7/1	9-18	60.00
Long Island College Hospital ★	Brooklyn	F. L. Senger	589	2,450	28	6	2	7/1	9-27	25.00
Buffalo General Hospital ★	Buffalo		438	738	28	15	1	.....	9-12	.....
Edward J. Meyer Memorial Hospital ★[4]	Buffalo	E. M. Watson	313	1,845	57	17	3	7/1	9-36	50.00
Queens General Hospital ★[4]	Jamaica, N. Y.	F. G. Riley	689	9,759	64	34	2	7/1	9-24	110.00
Bellevue Hospital, Div. II—Cornell U.★[4]	New York City	H. S. Jeck	1,144	8,774	88	12	5	Varies	9-12	25.00
Metropolitan Hospital ★[4]	New York City	S. Carleton	226	3,767	28	9	1	4/1	9-12	100.00
Morrisania City Hospital ★[4]	New York City	J. Duff	650	1,778	37	11	2	7/1	9	100.00
New York City Hospital ★	New York City	J. H. Morrissey	158	1,887	27	7	1	7/1	9	110.00
New York Hospital ★[4]	New York City	O. L. Brady	882	13,838	33	..	9	7/1	9-60	25.00
New York Polyclinic Medical School and Hospital ★	New York City		549	1,604	22	2	1	.....	9	25.00
New York Post-Graduate Medical School and Hospital ★	New York City	C. G. Bandler	1,332	4,062	20	6	4	7/1	9-36	30.00
Presbyterian Hospital ★[4]	New York City	G. Cahill	1,248	7,772	56	..	6	.....	9	20.83
Roosevelt Hospital ★	New York City	S. A. Beisler	485	2,267	16	2	2	7/1	9-12	.....
St. Luke's Hospital ★	New York City		421	2,380	21	6	1	Varies	9-36	50.00
Strong Memorial and Rochester Municipal Hospitals ★[4]	Rochester, N. Y.	W. W. Scott	753	10,185	...	..	4	7/1	9-48	41.66
Sea View Hospital [4]	Staten Island, N. Y.	A. G. Greenberger	168	.....	7	1	1	1/1, 7/1	9	110.00
Duke Hospital ★[4]	Durham, N. C.	E. P. Alyea	637	4,749	6	3	6	Varies	9	83.33
Watts Hospital ★	Durham, N. C.		369	276	6	2	1	7/1	9	100.00
North Carolina Baptist Hospital ★[4]	Winston-Salem, N. C.	F. K. Garvey	572	582	14	3	2	7/1	9	41.66
City Hospital ★[4]	Cleveland	H. Trattner	491	2,341	37	..	2	.....	9	75.00
Cleveland Clinic Foundation Hospital ★	Cleveland	W. E. Lower	904	.....	...	..	6	.....	9	100.00
University Hospitals ★[4]	Cleveland	J. E. Williams	558[b]	5,130[b]	...	..	1	7/1	9	.....
Starling-Loving University Hospital ★[4]	Columbus, O.	W. N. J. Taylor	398	779	16	2	3	.....	9	50.00
St. Vincent's Hospital ★[4]	Toledo, O.	L. P. Dolan	.....	41	38	1	1	.....	9	.....
University of Oregon Medical School Hospitals and Clinics ★[4]	Portland, Ore.	J. R. Hand	187	1,307	13	7	3	7/1	9	75.00
George F. Geisinger Memorial Hospital ★	Danville, Pa.	W. I. Buchert	549	4,656	11	2	1	7/1	9-24	75.00
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	J. Birdsall	178	1,962	14	5	1	7/1	9-24	.....
Hospital of the University of Pennsylvania ★	Philadelphia	A. Randall	612	2,382	9	8	1	7/1	9-36	.....
Jefferson Medical College Hospital ★	Philadelphia	D. M. Davis	714	4,976	...	..	1	.....	9	.....
Pennsylvania Hospital ★	Philadelphia	L. Herman	650	2,637	20	7	2	7/1	9-18	20.00
Presbyterian Hospital ★[10]	Philadelphia	J. C. Birdsall	.....	.....	...	..	1	7/1	9	50.00
Mercy Hospital ★[4]	Pittsburgh	E. J. McCague	546	.....	17	4	1	11/1	9-36	.....
Parkland Hospital ★	Dallas, Tex.	A. I. Folsom	.....	.....	...	..	1	.....	9	50.00
University of Virginia Hospital ★	Charlottesville, Va.	S. A. Vest	558	2,807	28	9	6	7/1	9	25.00
State of Wisconsin General Hospital ★	Madison, Wis.	I. Sisk	684	.....	22	12	3	7/1	9-36	25.00
Milwaukee County Hospital ★[4]	Milwaukee	R. S. Irwin	906	2,108	40	8	2	7/1	9-36	65.32

Hospitals, 82; Assistant Residencies and Residencies, 210

Mayo Foundation Fellowships—The Mayo Foundation for Medical Education and Research, Rochester, Minn.; D. C. Balfour, director; three-year fellowships, beginning quarterly, leading to the degree of M.S. or Ph.D. with field named from the University of Minnesota; in Anesthesia, Dermatology and Syphilology, Internal Medicine, Neurology and Psychiatry, Neurosurgery, Obstetrics and Gynecology, Ophthalmology, Orthopedic Surgery, Otolaryngology, Pathology, Pediatrics, Physical Medicine, Plastic Surgery, Proctology, Radiology, Surgery, Urology; stipend $900 per year, (clinical fellowships including pathology and radiology—tentative estimate, 400).

a. Compensation arranged by medical school and hospital.
b. As reported in previous list.
c. In lieu of maintenance.
d. Residency in epilepsy.
e. Obstetrical training at Herman Kiefer Hospital, Detroit.
f. Training in gynecology at City of Detroit Receiving Hospital.
g. Assignments in psychosomatic medicine also available.
h. Fellowship offered in affiliation with Northwestern University Medical School, St. Luke's Hospital and Wesley Memorial Hospital, Chicago.
i. Outpatient and home delivery service only.
k. Training in gynecology at Barnes Hospital, St. Louis.
1. Approved by the Board as offering satisfactory one year training.
2. Approved by the Board as offering satisfactory two year training.
3. Approved by the Board as offering satisfactory three year training.
4. Residencies open to women.
5. Clinical data include psychiatry.
6. Inpatients: Data refer to total inpatients treated in specialty. Obstetrical admissions do not include newborn. In pathology and anesthesiology total hospital admissions are used.
7. Clinical data include neurology.
8. Includes fellowships.
9. Affiliated with Northwest Clinic, Minot.
10. Includes acceptable affiliate assignment at Urologic Clinic, Philadelphia.
11. Includes affiliate service at South Bend Medical Laboratory, St. Joseph Hospital, South Bend; Elkhart General Hospital, Elkhart and St. Joseph's Hospital, Mishawaka, Ind.
12. Represents training acceptable to Board in (1) radiology, (2) roentgenology, (3) therapeutic radiology or (4) diagnostic roentgenology.
13. Affiliated with North Carolina Orthopedic Hospital, Gastonia.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. of Obstetrics and Gynecology, St. Louis

50:1-118 (July) 1945

Carcinoma of Uterine Cervix: Interval Report on Treatment, Results and Complications. G. V. S. Smith and R. Dresser.—p. 1.
Transplantable Rat Tumor. R. M. Watts and F. L. Adair.—p. 11.
Cesarean Section Mortality. W. J. Dieckmann.—p. 28.
Serum Protein in Normal and Toxemic Pregnancy. R. E. Rinehart.—p. 48.
Treatment of Functional Dysmenorrhea with Pregneninolone. F. E. Harding.—p. 56.
Possible Role of Bacterial Synergism in Puerperal Infections Due to Anaerobic Streptococci. S. R. Steinhorn.—p. 63.
Experience with Continuous Caudal Analgesia in Obstetrics at University of Michigan Hospital: Report of 250 Consecutive Cases. G. J. Andros and C. W. Henderson.—p. 68.
Cesarean Section Under Fractional Spinal Anesthesia. W. Levine.—p. 75.
Circulation of Amniotic Fluid. W. F. Mengert and J. W. Bourland.—p. 79.
*Vitamin E in Menopause: Preliminary Report of Experimental and Clinical Study. C. J. Christy.—p. 84.
*Sulfonamide and Stilbestrol Therapy in Gonococcal Vulvovaginitis. Lucile R. Hac, H. C. Hesseltine, F. L. Adair and Myrtle B. Crudim.—p. 88.
Craniotomy, with Review of Cases. J. I. Kushner and A. C. Posner.—p. 95.
Essential Dysmenorrhea—Its Treatment with Pavatrine: Preliminary Report. C. H. Weinberg.—p. 98.
Test Case to Show Value of Cervical Cytology Smear in Uterine Cancer Diagnosis. J. E. Ayre, W. A. G. Bauld and P. J. Kearns.—p. 102.
Parovarian Cyst Causing Dystocia. W. Downing and L. O'Toole.—p. 106.
Intraperitoneal Nabothian Cyst. R. T. Frank.—p. 107.
Avulsion Defects of Scalp of Newborn Infant: Medicolegal Implications. W. J. Finegold and E. B. Schuster.—p. 108.

Vitamin E in Menopause.—Christy gave vitamin E in the form of a synthetic preparation, ephynal acetate, in 10 mg. tablets, to 25 patients ranging from 22 to 55 years. Of this group 12 had carcinoma of the cervix, 1 had adenocarcinoma of the fundus, 1 had malignant leiomyoma and sarcoma of the uterus, 6 had fibroids, 1 had carcinoma of the ovary, 1 had hemangioendothelioma of the parametrium, 1 had postmenopausal bleeding after estrogenic therapy, 1 had dysfunctional uterine bleeding due to endocrine disorder and 1 had endometriosis. No patient was treated who did not complain of severe symptoms of vasomotor instability. The amount of the drug taken varied from 10 to 30 mg. a day, depending on the degree of severity of symptoms, over periods of from one to six weeks. Seven patients reported complete and 16 great relief. The relief of symptoms in patients after administration of vitamin E could not be distinguished from that obtained with the natural or synthetic estrogens. In some cases vitamin E seems more effective in relieving the symptoms of vasomotor instability than estrogens. The chief advantage over estrogen is that vitamin E is free of any stimulative effect on the genital system or on the parenchyma of the breast. It plays no carcinogenic role as the estrogens may do and therefore can be used freely in menopausal patients with neoplastic disease. It is well tolerated.

Sulfonamide and Diethylstilbestrol in Gonococcic Vulvovaginitis.—According to Hac and her associates, of 135 children with gonococcic vulvovaginitis treated with sulfanilamide, sulfapyridine or sulfathiazole and observed one year following therapy, equally good results were obtained with sulfapyridine and sulfathiazole whether the response was based on cure (both 89 per cent) or on initial failure (sulfapyridine 5 per cent, sulfathiazole 6 per cent). Sulfapyridine caused more minor toxic symptoms than did sulfathiazole. Sulfanilamide is definitely contraindicated because of the higher percentages of failure and because it tends to produce strains of gonococci which are resistant to sulfonamides. Of 35 children treated with sulfadiazine and observed three months following therapy, 89 per cent were cured and 6 per cent were initial failures. Diethylstilbestrol was useful in the treatment of sulfonamide resistant cases. Negative cultures for three months are probably sufficient criteria to establish a cure. Patients under treatment and observation may be permitted to return to school as soon as cultures have become negative.

American Journal of Pathology, Ann Arbor, Mich.

21:567-820 (July) 1945

*Vaginal Smear in Diagnosis of Carcinoma of Uterus. O. Gates and S. Warren.—p. 567.
*Comparative Study of Pathology of Scrub Typhus (Tsutsugamushi Disease) and Other Rickettsial Diseases. A. C. Allen and Sophie Spitz.—p. 603.
Malignant Lymphoma (So-Called Leukemia) in Dogs. F. Bloom and L. M. Meyer.—p. 683.
Internal Lesions in Burns, with Special Reference to Liver and Splenic Nodules: Analysis of 96 Autopsies. R. D. Baker.—p. 717.
"Masson Body" in Rheumatic Pneumonia. P. A. Herbut and W. E. Manges.—p. 741.
Reaction of Reticuloendothelial System in Experimental Brucellosis of Dogs. G. Margolis, W. D. Forbus and G. P. Kerby.—p. 753.
Failure of Pressor Drugs to Influence "Juxtaglomerular Apparatus" in Rats. I. Graef and G. G. Proskauer.—p. 779.
Primary Intracranial Chorionepithelioma with Metastases to Lungs. R. E. Stowell, E. Sachs and W. O. Russell.—p. 787.
Renal Injury in Rat Following Administration of Serine by Stomach Tube. R. P. Morehead, W. H. Fishman and C. Artom.—p. 803.

Vaginal Smear in Diagnosis of Carcinoma of Uterus.—During the period from February through Nov. 15, 1944 Gates and Warren examined 341 vaginal smears from 233 patients. The stain recommended by Papanicolaou and Traut was used for nearly all smears. The others were stained with hematoxylin and eosin and were quite satisfactory. The authors think that a mistaken positive diagnosis of a negative smear should be a problem only in exceptional cases of radiation reaction or of senile atrophy with infection. False negative diagnoses are more difficult to avoid. There are certain types of carcinoma cells which are difficult to recognize without a good deal of experience. Interpretation of smears made after radiation treatment demands more experience than other smears because of the changes in epithelium induced by radiation. The smear may be valuable in diagnosis to detect recurrence after radiation, since in these cases biopsy is preferably avoided. As a subsidiary test the vaginal smear may be especially useful in cases of "hidden" carcinoma. It may be of value as a screening test for detecting the existence of cervical or endometrial cancer in large groups of women.

Pathology of Tsutsugamushi Fever and Other Rickettsial Diseases.—Allen and Spitz studied the histologic preparations and protocols of 78 cases of tsutsugamushi disease (scrub typhus), 24 cases of epidemic (louse borne) typhus, 12 cases of Rocky Mountain spotted fever and the sections of lungs of 2 cases of American Q fever. The primary lesion, or eschar, is considered to be provoked by the combined action of the secretion of the larval mite and the inoculated rickettsias. It is suggested that the absence of the eschar in certain instances of scrub typhus may be due to variations in cutaneous immunity. Interstitial pneumonitis is common in scrub typhus, in contrast with epidemic typhus and Rocky Mountain spotted fever. The histologic picture of the interstitial pneumonitis of scrub typhus is distinguishable from that of Q fever, rheumatic fever, toxoplasmosis and virus pneumonia. The amount of hepatic damage does not suggest that hypoproteinemia is due to hepatic insufficiency. Early, acute, diffuse glomerulonephritis is common in scrub typhus, epidemic typhus and Rocky Mountain spotted fever. The focal encephalitis or nodule of scrub typhus is qualitatively similar to that of epidemic typhus and is in contrast to the "microinfarct" of Rocky Mountain spotted fever. The nodules of scrub typhus and epidemic typhus are practically limited to the gray matter, whereas the encephalitis of spotted fever involves the white matter preponderantly. Contrary to the generally held impression, there is a sparsity of microscopically evident vascular damage in scrub typhus. Arteritis is exceedingly slight in scrub typhus in contrast with epidemic typhus and Rocky Mountain spotted fever. The peripheral circulatory failure in patients with rickettsial diseases is a complex phenomenon which cannot be explained solely on the basis of mor-

phologic damage to vessels. The contributory role of the adrenal gland is suggested. Evidence is presented of the lymphoblastic origin of the cells of the interstitial infiltrate. It is suggested that the large "basophilic macrophage" is identical with the "acute splenic tumor cell," and evidence is given pointing toward the association of these cells with an allergic response. The authors emphasize the importance of the indirect, possibly toxic but more likely hyperergic effects of the rickettsias on the basis of certain histologic responses which are regarded as presumptive evidence of the action of allergens. These responses include fibrinoid degeneration of collagen, necrosis of lymph nodes and spleen, predominance of the basophilic macrophage and associated cells, and acute diffuse glomerulonephritis.

American Journal of Physiology, Baltimore

144:1-173 (June) 1945

Effect of Modulated High Frequency Condenser Field on Straub-Fuehner Frog Heart Preparation. C. Fenning and C. R. Mott.—p. 1.
*Experimental Studies on Man with Restricted Intake of B Vitamins. A. Keys, A. Henschel, H. L. Taylor, O. Mickelsen and J. Brozek. —p. 5.
Flow and *p*H Change of Submaxillary Saliva Associated with Variations in Acid-Base Equilibrium. C. R. Brassfield.—p. 43.
Carbohydrate and Acetone Body Metabolism of Liver Slices and Effect of Insulin. R. A. Shipley and E. J. Humel Jr.—p. 51.
Comparison of Intravenous and Oral Vitamin Tolerance Tests. R. E. Johnson, L. A. Contreras, F. C. Consolazio and P. F. Robinson. —p. 58.
Hypertrophy of Adrenal Medulla of White Rats in Chronic Thiouracil Poisoning. D. Marine and E. J. Baumann.—p. 69.
Riboflavin and Vitamin B Potency of Tissues from Rats Fed Succinylsulfathiazole With and Without Liver Supplements. B. S. Schweigert, L. J. Teply, I. T. Greenhut and C. A. Elvehjem.—p. 74.
Mechanisms of Carotid Body Stimulation. W. H. Hollinshead and C. H. Sawyer.—p. 79.
Oxygen Consumption of Excised Rat Tissues Following Acute Anoxic Anoxia F. A. Fuhrman, G. J. Fuhrman and J. Field 2d.—p. 87.
Failure of Transfusions in Irreversible Hemorrhagic Shock (Study of Central Venous Pressures). C. J. Wiggers.—p. 91.
Blood Potassium and Histamine Intoxication in Relation to Adrenocortical Function in Rats. Caroline Tum-Suden, L. C. Wyman and M. A. Derow.—p. 102.
Protection of Adrenalectomized Rats Against a High Temperature. Virginia Hermanson and F. A. Hartman.—p. 108.
Effect of Electric Current on Gastric Secretion and Potential. W. S. Rehm.—p. 115.
Anticholinesterase Activity of Acid as Biologic Instrument of Nervous Integration. R. Gesell and E. T. Hansen.—p. 126.
Studies on Cardiovascular System of Dogs with Radioactive Inert Gases. S. F. Cook and W. N. Sears.—p. 164.
Spread of ACh Induced Electrical Discharges of Cerebral Cortex. F. M. Forster and R. H. McCarter.—p. 168.

Experimental Studies on Restricted Intake of B Vitamins.—Keys and his associates of the laboratory of Physiologic Hygiene of the University of Minnesota studied experimentally the relation in normal men between intake of vitamins of the B complex and various aspects of fitness. Four normal young men were maintained on a controlled dietary intake of 0.185 mg. of thiamine, 0.287 mg. of riboflavin and 3.71 mg. of niacin per thousand calories. Four other subjects were on the same diet but supplemented each day with 1 mg. of thiamine, 1 mg. of riboflavin and 10 mg. of niacin. The difference in vitamin intake was disguised by the use of placebos. Over a period of 161 days the 2 groups showed no noteworthy differential changes. The vitamin restriction was without significant effect on the aspects of "fitness," "health" and personality, but thiamine intake was on the borderline of inadequacy, as indicated by blood pyruvate. There were no signs of deleterious effects from the restriction in riboflavin and niacin. Eight young men subsisted for thirty-three days on a diet adequate except in B vitamins, which were extremely limited: 0.008 mg. of thiamine, 0.013 mg. of riboflavin and 0.1 mg. of riboflavin per thousand calories. Daily capsules provided adequate B vitamins to 4 of the men; the other 4 men received placebos. Half of the men in each group had subsisted for six months previously on an adequate intake of all nutrients except B vitamins, which were restricted to about one third of the National Research Council recommended allowances. The other men had received the same diet plus adequate supplements of the B vitamins. Accordingly there were 2 men in each of four groups with reference to previous and present diets: restricted-deficient, control-deficient, restricted-control, control-control. Anorexia, and later nausea and vomiting, began in the restricted-deficient men after about eight days and progressed to almost complete inability to eat in eighteen to twenty days. The control-deficient men showed the same changes, with a lag of five or six days. After twenty-three days the men in both of these groups were given daily supplements of thiamine only, with a rapid return of appetite and regression of other symptoms and functional abnormalities. The restricted-deficient men showed progressive and eventually severe deterioration in endurance, coordination and "fitness," with trifling or absent effects on strength, vision, hearing and speed. Similar results were obtained with the control-deficient men, with a lag of about a week. Simple muscle efficiency was unaltered, but cardiovascular capacity and respiratory efficiency were reduced by the deficiency. All of the deficient men showed pronounced tachycardia in work, but only 1 of them developed resting bradycardia. Intellective functions were resistant to the deficiency, but there were changes in personality toward apathy, depression and hypochondriasis. Thiamine was much the most important B vitamin in this acute restriction. The bodily stores of thiamine are effective for at most a few weeks under these conditions. The present results confirm the conclusion that the restricted diet was less than adequate or optimum, at least in thiamine, but that such inadequacy represented only a loss of a few days in the margin of safety.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

54:1-108 (July) 1945

Infantile Cortical Hyperostoses: Preliminary Report on New Syndrome. J. Caffey and W. A. Silverman.—p. 1.
Hypertrophic Pyloric Stenosis in Infants: Roentgenologic Differential Diagnosis. R. F. Miller and H. W. Ostrum.—p. 17.
Gastric Volvulus and Other Abnormal Rotations of Stomach. J. B. Hamilton.—p. 30.
Osteochondritis Dissecans of Supratrochlear Septum of Humerus. W. E. Crysler and H. S. Morton.—p. 41.
Neoplasms Observed in Army General Hospital: Report of 3 Cases: Two Cysts of Mediastinum and Fibroma of Stomach. A. J. Present. —p. 47.
Interstitial Emphysema and Pulmonary Collapse Complicating Fractures of Skull. P. J. Hodes and R. A. Groff.—p. 54.
Visualization of Coronary Arteries in Dogs. N. Grossman.—p. 57.
*Irradiation Failures in Early Cervical Cancer: Improved Irradiation or Return to Surgery. F. Buschke and S. T. Cantril.—p. 60.
Slide Rule for Determination of Dosage from Linear Radium Applicators. G. Rudinger.—p. 72.
Nomogram for Evaluation of Intermittent Radon Treatment. G. Rudinger.—p. 78.

Irradiation Failures in Early Cervical Cancer.—Buschke and Cantril say that even if statistically the superiority or at least equality of radiation therapy for the operable stages 1 and 2 so far has not been disproved, the fact remains that 20 per cent of stage 1 and at least 30 per cent of stage 2 cases are not cured by even the most competent and skilful radiation therapists. The question arises whether these cases represent types of the disease essentially not suitable for radiation therapy and, if so, whether possibly some of these lesions could be controlled by radical hysterectomy. Taussig's recommendation of an iliac lymphadectomy in conjunction with irradiation, and Meigs's recent resumption of the Wertheim operation for selected cases have again stimulated interest in this problem. In 1940 the authors analyzed the failures in cases treated at the Swedish Hospital Tumor Institute between 1935 and 1938. They admit that there is a group of cases of epidermoid carcinoma of the cervix with peripheral lymph node involvement in the pelvis in which radiation therapy apparently will not accomplish a cure and in which theoretically surgery would be more promising. In their own series 4 cases out of 79 belong in this group. Three of these would not have been accepted for surgery according to Meigs's rigid standards. In Meigs's own series 9 patients belong in this group out of 65 on whom he operated. This means that 3 out of 20 would be saved, while 17 would be subjected to unnecessary surgery. Since it is impossible to recognize these cases prior to treatment, it is most likely that the actual survival rate by surgery would be smaller than if radical radiation therapy was instituted. The survey of their own material has shown that more cases were not controlled by irradiation because of some avoidable inadequacies of treatment than would have been saved by surgery of cases essentially unsuitable for irradiation. They think that improvement of radiation therapy by attention to technic, by the elimination of inadequate procedures and by the adaptation of the procedure to the individual requirements will probably save more patients than a return to surgery.

American Journal of Surgery, New York

69:1-140 (July) 1945

Allantoin-Sulfanilamide Ointment in Surgery. S. D. Spotts and J. B. Davis.—p. 4.
Carotid Body Tumors: Review of Literature, with Report of 2 Cases. A. M. Dickinson and C. A. Traver.—p. 9.
Cancer of Breast: End Results in 122 Cases. J. G. Garland.—p. 17.
Dermoplasty of War Wounds of Lower Leg. J. F. Pick.—p. 25.
Anatomic and Functional Reductions of Fractures of Pelvis. F. W. Carruthers.—p. 39.
Evolution of Gastrostomy. J. L. Spivack.—p. 47.
Early Extirpation of Uterus in Persistent Atony with Postpartum Hemorrhage. H. M. Rabinowitz and N. Reibstein.—p. 66.
Working Basis for Treatment of Head Injuries. T. L. Hyde.—p. 73.
Healing Rate of Human Skin Determined by Measurement of Electrical Potential of Experimental Abrasions: Study of Treatment with Petrolatum and with Petrolatum Containing Yeast and Liver Extracts. T. C. Barnes.—p. 82.
Operating Room Explosions. R. L. Waugh and L. Bond.—p. 89.
Tourniquet: Its Clinical Application. R. T. McElvenny.—p. 94.
*Normal Physiologic Douches. K. J. Karnaky.—p. 107.
Clinical Value of Functional Liver Tests. A. O. Wilensky.—p. 116.

Douches.—Karnaky points out that many physicians are still prescribing alkaline substances, sodium perborate, borax, sodium bicarbonate, potassium permanganate, magnesium sulfate and sodium chloride or a combination of these, in the treatment of vaginal leukorrhea or as a cleansing douche when it is scientifically established that the normal hydrogen ion concentration of the adult vagina is acid. He thinks that acid douches (p_H 3.0 to 5.0) should be used, because with pathologic changes there is hypoacidity of the vagina, and, as these changes increase, the hydrogen ion concentration approaches the alkaline side. Alkaline douches favor the growth of pathogenic organisms. The best douche found in ten years of research is vinegar. The patient should be instructed to use 5 tablespoons of vinegar to the douche bag if there is an acute vaginitis. After two weeks, 2 to 3 tablespoons is used instead of 5. For an ordinary cleansing douche 3 tablespoons of vinegar should be added to the douche bag.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

29:381-486 (July) 1945

Venereal Disease Control in Europe, with Particular Reference to Scandinavian Countries During World War II: Postwar Problems from Point of View of Maritime Nations. T. Guthe.—p. 381.
Experiment in Venereal Disease Education in Negro Schools. C. M. Carpenter, Evelyn Rahm, L. A. Kirkendall and M. E. Winchester.—p. 392.
Transfer of Penicillin into Cerebrospinal Fluid Following Parenteral Administration. W. McDermott and R. A. Nelson.—p. 403.
Experimental Syphilis in Different Species of Native American Mice. U. J. Wile and S. A. M. Johnson.—p. 416.
Experimental Syphilis in the Golden Hamster. U. J. Wile and S. A. M. Johnson.—p. 418.
Abducens Palsy (with Subsequent Recovery) Following Lumbar Puncture. H. M. Robinson Jr.—p. 422.
*Secondary Syphilis Following Penicillin Therapy of Gonorrhea. D. W. Atcheson.—p. 423.
Diagnosis of Granuloma Inguinale Made by Examination of Tissue Stained with Hematoxylin and Eosin. Report of Case. S. H. Polayes and L. Williams.—p. 425.
Effect of Fever on Toxicity of Mapharsen for Rabbits. R. A. Boak, F. L. Dorn and C. M. Carpenter.—p. 428.
Late Neurosyphilis in North American Negroes and Whites. W. R. Kirschbaum.—p. 432.
Treatment of Venereal Diseases in European Theater of Operations. D. M. Pillsbury.—p. 447.
Studies on Syphilis in Eastern Health District of Baltimore City: VI. Prevalence in 1939 by Race, Sex, Age and Socioeconomic Status. E. G. Clark.—p. 455.

Secondary Syphilis Following Penicillin Therapy of Gonorrhea.—Atcheson reports a case which demonstrates the inadequacy of treating syphilis with the same dosage of penicillin used for gonorrhea. The patient was under complete control during the entire period of observation. He was not allowed off the Army air base; hence the possibility is eliminated of syphilitic infection after the penicillin was administered. The patient demonstrated a moderate reaction to penicillin. He was discharged from the hospital eleven days after penicillin treatment. Two weeks after discharge from the hospital, twenty-five days after the penicillin was administered and thirty-two days after the supposedly infecting sexual exposure, the patient developed a maculopapular skin rash confined to the penis and scrotum. Dark field examination was positive for Treponema pallidum. The blood serologic test was now positive. Diagnosis of secondary syphilis was made and the patient treated with the routine Army course of oxophenarsine hydrochloride and bismuth subsalicylate. His response has been satisfactory and uneventful.

Annals of Surgery, Philadelphia

122:1-128 (July) 1945

Traumatic Osteomyelitis: Use of Skin Grafts—Part I. Technic and Results. R. P. Kelly, L. M. Rosati and R. A. Murray.—p. 1.
Experiences with 156 Penetrating Wounds of Head. W. C. Gaynor and J. Gurwitz.—p. 12.
Experiences with Injuries and Diseases of Bone in World War II. W. M. Weeden and H. D. Stein.—p. 23.
Experiences with Sympathectomy in Peripheral Lesions. J. A. Kirtley Jr.—p. 29
Resurfacing of Dorsum of Hand Following Burns. A. W. Farmer and F. M. Woolhouse.—p. 39.
Cholecystogastroduodenocutaneous Biliary Fistula: Case Report. H. K. Gray and W. S. Sharpe.—p. 48.
Solitary Diverticulitis of Cecum: Report of 2 Cases. J. W. Gatewood.—p. 52.
Continuous Traction Screw for Fixation of Fractures of Hip: Review of 23 Cases. H. Virgin Jr. and W. R. MacAusland.—p. 59.
Recurrent Inguinal Hernia. H. L. Skinner Sr. and R. D. Duncan.—p. 68.
Present Status of Injection Treatment of Hernia. R. L. Maier.—p. 85.
Cancer of Face: Clinical and Statistical Study of 1,062 Cases. T. De Cholnoky.—p. 88.
Traumatic Aneurysm of First Portion of Left Vertebral Artery: Case Report. C. J. Heifetz.—p. 102.
Stricture of Female Urethra with Lymphopathia Venerea: Lymphogranuloma Inguinale. R. Tauber.—p. 111.
*Serum Amylase Findings in Chronic Alcoholic Patients with Acute, Severe Abdominal Symptoms. S. J. Carter.—p. 117.
Myoblastoma: Case Report. T. G. Orr Jr.—p. 122.

Serum Amylase in Chronic Alcoholic Patients with Acute Abdominal Symptoms.—Carter reports 11 cases in which there was a history of chronic alcoholism and the symptoms on admission were vomiting, severe pain in the epigastrium and rigidity of the abdominal muscles, especially in the upper half, with or without tenderness in the epigastrium. In this type of case, members of the staff usually made the diagnosis of "acute alcoholic gastritis," while not infrequently an unnecessary exploratory celiotomy was done for a possible surgical lesion. In 4 of the cases operations were performed, and in each instance edema about the pancreas was noted and the peritoneal fluid was of a thin sanguineous character. In the remaining 7 cases the high amylase findings were the chief factor in deciding against operative intervention. These 7 patients were discharged well. In cases 2 and 3 amylase readings were made of the peritoneal fluid in addition to the readings in the serum, while in cases 3, 6 and 7 determinations were also made on the urine. The peritoneal fluid readings and urine amylase readings were above normal. The author concludes that serum amylase determinations should be made on all chronic alcoholic patients if operative intervention is contemplated because of severe, acute abdominal symptoms.

Archives of Physical Medicine, Chicago

26:389-474 (July) 1945

Combined Treatment of Rhizomelic Spondylosis (Marie-Strümpell Arthritis): Orthopedic, Roentgen Ray and Physical Therapy. L. D. Baker.—p. 389.
*Challenge of Crutches: Methods of Crutch Management. G. G. Deaver and Mary E. Brown.—p. 397.
Some Effects of War on Medicine. E. J. Jaqua.—p. 404.
Measurement of Joint Motion. Catherine C. West.—p. 414.

Crutches.—According to Deaver and Brown, good crutch walking requires a systematic program with competent instruction. This program should include a muscle test to judge the subject's joint movements and strength, exercises to develop the muscle groups needed for crutch management, proper selection of the crutches to be used, correct measurement for the crutches and determination of the crutch gaits suitable to the disability. It has been stated that a good rule for measuring crutches is to measure the distance from the patient's axilla to the floor and add 2 inches to this length. Another author indicates that crutches should measure the length from axilla to heel plus 4 inches; the handle bar should be about 4 inches less than the inside length of the area from the top of the crutches. Another opinion concerning the placement of the hand pieces is that "the distance between the top of the crutch and the hand piece should be such that by bearing down

hard on top of the crutch with one's armpit the wrist can be flexed to a right angle under the hand piece. This author also states that for the more helpless patients who use the rocking method the crutches must be longer. A dealer in crutches has figured out that the proper length of crutches will probably be 77 per cent of the height of a patient.

Canadian Journal of Public Health, Toronto

36:261-304 (July) 1945

*Tuberculosis Survey Among Ottawa Federal Civil Servants. S. A. Holling.—p. 261.
Recording Child Hygiene Activities in Calgary. W. H. Hill.—p. 268.
Construction and Use of Dietary Standards: Statement Adopted by Canadian Council on Nutrition.—p. 272.
Nutrition Survey in Ste. Anne de Bellevue, Quebec. Florence A. Farmer and Margaret S. McCready.—p. 276.
Mortality Reductions in Ontario, 1900-1942. N. E. McKinnon.—p. 285.

Tuberculosis Survey Among Ottawa Civil Servants.—A tuberculosis survey of the Ottawa federal civil servants which lasted from Sept. 20, 1943 to March 31, 1944 revealed that among 30,260 civil servants there were 120 cases of active tuberculosis. The incidence of active tuberculosis found in this survey of what might be called a selective group is 0.39 per cent, or roughly 4 in every thousand persons examined. This was three times the average found in other Ontario surveys in 1943. Some of the reasons mentioned by Holling for the high percentage of active cases found in this survey are (*a*) the influx of people to the city of Ottawa and district from other provinces and sections of Ontario where the incidence of tuberculosis is much higher than the average for the province as a whole, (*b*) the crowded living conditions in Ottawa and (*c*) certain economic factors. In only 10 per cent of the 80 newly discovered cases analyzed had a physician been consulted within the past year, and a considerable number gave a history of contact and pleurisy. Also there were 32 previously known cases which were shown to have become reactivated. It is apparent from these facts that preventive services are inadequate.

Endocrinology, Springfield, Ill.

36:355-438 (June) 1945

Metabolism of Steroid Hormones: Metabolism of Testosterone in Normal Woman. Sara Schiller, R. I. Dorfman and M. Miller.—p. 355.
Estrogens, Thiourea, Thiouracil and Tolerance of Rats to Simulated High Altitudes (Low Atmospheric Pressures). E. D. Goldsmith, A. S. Gordon and H. A. Charipper.—p. 364.
Studies on Hormonal Control of Estrous Phenomena in Anestrous Ewe. H. H. Cole, G. H. Hart and R. F. Miller.—p. 370.
Effect of Adrenal Cortical Hormone Therapy on Altitude Tolerance. G. W. Thorn, M. Clinton Jr., B. M. Davis and R. A. Lewis.—p. 381.
Study of Fractionation of Neutral Urinary Steroids by Adsorption on Magnesium Oxide. W. Bowman.—p. 391.
Involution of Adrenal Cortex in Rats Fed with Thiouracil. E. J. Baumann and D. Marine.—p. 400.
Studies on Mechanism of Hypercholesterolemia and Hypercalcemia Induced by Estrogen in Immature Chicks. W. Fleischmann and Ilse A. Fried.—p. 406.
Effect of Androgen on Prostate in Starvation. R. Pazos Jr. and C. Huggins.—p. 416.
Effect of Pretreatment on Relative Potency of 11-Desoxycorticosterone Acetate and 17-Hydroxy-11-Dehydrocorticosterone in Muscle Work Test. D. J. Ingle, M. L. Pabst and M. H. Kuizenga.—p. 426.

Florida Medical Association Journal, Jacksonville

32:1-54 (July) 1945

Rheumatic Fever in Florida. T. F. Hahn.—p. 27.
History of Medicine in Duval County: Part V. W. Merritt.—p. 31.

32:81-102 (Aug.) 1945

Tumors of Male Breast. J. C. Pate.—p. 81.
Treatment of Typhus Fever. Preliminary Report. T. H. Davis.—p. 84.

Illinois Medical Journal, Chicago

87:269-322 (June) 1945

Coronary Outlook. R. S. Berghoff.—p. 281.
Tuberculosis: New Postwar Public Health Problem. E. A. Piszczek.—p. 284.
Control of Tuberculosis in Wartime. M. Pollak.—p. 292.
Neurologic Symptoms of Infectious Mononucleosis. T. J. Coogan, D. L. Martin and W. H. Mathews.—p. 296.
Acute Pyogenic Osteomyelitis of Facial Bones. G. J. Greenwood.—p. 302.
Ocular Brucellosis. A. C. Krause.—p. 306.

Journal of Bone and Joint Surgery, Boston

27:361-546 (July) 1945. **Partial Index**

Treatment of Malunited Colles's Fractures. J. S. Speed and R. A. Knight.—p. 361.
Surgical Anatomy of Flexor Tendons of Wrist. E. B. Kaplan.—p. 368.
Rotational Deformity in Treatment of Fractures of Both Bones of Forearm. E. M. Evans.—p. 373.
Operation for Paralysis of Serratus Anterior. D. C. Durman.—p. 380.
*Treatment of Nonunion or Delayed Union of Fractures by Means of Massive Onlay Grafts Fixed with Vitallium Screws. D. M. Meekison.—p. 383.
Correction of Hallux Valgus by Metatarsal Osteotomy. F. B. Hawkins, C. L. Mitchell and D. W. Hedrick.—p. 387.
Healing Time in Fractures of Shafts of Tibia and Femur. R. V. Funsten and R. W. Lee.—p. 395.
Echinococcosis of Bone. M. B. Howorth.—p. 401.
Analysis of 100 Consecutive Arthrotomies for Traumatic Internal Derangement of Knee Joint. G. T. DuToit and T. B. Enslin.—p. 412.
Traumatic Degeneration of Articular Cartilage of Patella. R. Soto-Hall.—p. 426.
Pneumarthrograms of Knee: Diagnostic Aid in Internal Derangements. W. H. McGaw and E. C. Weckesser.—p. 432.
Lateral Dislocation of Patella: Correction by Simultaneous Transplantation of Tibial Tubercle and Semitendinosus Tendon. H. R. McCarroll and J. R. Schwartzmann.—p. 446.
Delayed Primary Closure of Wounds with Compound Fractures. M. Cleveland and J. A. Grove.—p. 452.
Experience with Whole Blood and Plasma. F. H. Coulson.—p. 457.
Transportation of Wounded Soldier. J. G. Manning.—p. 458.
Intervertebral Disk: Its Microscopic Anatomy and Pathology: Part III. Pathologic Changes in Intervertebral Disk. M. B. Coventry, R. K. Ghormley and J. W. Kernohan.—p. 460.
Intervertebral Foraminotomy for Relief of Sciatic Pain. H. Briggs and J. Krause.—p. 475.
*Chronic Melioidosis: Case Showing Multiple Lesions of Bones, Joints and Lungs. J. H. Mayer.—p. 479.
Use of Sulfonamides in Compound Fractures. M. S. Eveleth.—p. 486.
Simplified Surgical Approach to Posterior Tibia for Bone Grafting and Fibular Transference. P. H. Harmon.—p. 496.

Onlay Grafts Fixed with Vitallium Screws.—Meekison points to the almost universally good results obtained by the massive onlay graft for delayed union or nonunion of long bones. The massive onlay graft is a full-thickness piece of cortex of autogenous bone applied to the surface of the fragments (across the ununited gap) but not countersunk into the recipient fragments. Union takes place between the fragments and the graft and directly across the gap. Firm fixation is provided, which is essential. Fixation of the onlay graft has been done with aluminum, bronze and silver wire and kangaroo tendon. The author is not in sympathy with the use of these. Vitallium screws have greatly simplified the procedure. The massive onlay graft, fixed with vitallium screws, meets all the requirements—internal fixation, supplementary bone, osteogenic material and the stimulation of osteogenesis. In 170 cases in which this method of grafting the long bones has been employed, Meekison has had only 1 failure.

Chronic Melioidosis.—According to Mayer, melioidosis is an infective disease occurring in Burma, Ceylon, French Indo-China, the Netherland East Indies, Malaya and Siam. It is a disease of rodents and man; it is assumed that infection in man is acquired from infected rodents, possibly by contaminated food or water supplies. The causative organism was named Bacillus whitmori by Stanton and Fletcher in 1921 but was assigned to the Pfeifferella group of bacteria by Topley and Wilson and is now known as Pfeifferella whitmori or Malleomyces pseudomallei. In most cases the disease has been acute, with symptoms simulating cholera or typhoid, and has proved fatal from septicemia within a few days or weeks. At necropsy the commonest findings have been areas of consolidation and small abscesses in the lungs, and abscesses or areas of caseation in the spleen, liver and kidneys. The chronic form of this disease is far less common. The author reports chronic melioidosis in a man aged 33. Some of the lesions primarily involved bone and others cartilage. Much of the patient's improvement may be attributed to the combination of autogenous vaccine and sulfadiazine therapy. An important principle in the treatment of melioidosis is that the abscesses, unlike those of tuberculosis, should be drained early and adequately. Abscess formation was accompanied by a deterioration in the general condition, which improved following the institution of adequate drainage.

Journal Industrial Hygiene & Toxicology, Baltimore

27:123-146 (May) 1945

Carbon Disulfide and Hydrogen Sulfide: Clinical Study of Chronic Low Grade Exposures. H. H. Rubin and A. J. Arieff.—p. 123.
Acute and Subacute Toxicity of Di(2-Ethylhexyl) Phthalate, with Note on its Metabolism. C. B. Shaffer, C. P. Carpenter and H. F. Smith Jr.—p. 130.
Rapid and Simple Method for Measuring Small Amounts of Cyanide Gas in Air. W. A. Robbie and P. J. Leinfelder.—p. 136.
Study of Perchlorethylene Degreasers. R. C. Crowley, C. B. Ford and A. C. Stern.—p. 140.

Journal of Nat. Cancer Inst., Washington, D. C.

5:383-454 (June) 1945

Fate of C3H Milk Influence in Mice of Strains C and C57 Black. H. B. Andervont.—p. 383.
Relation of Milk Influence to Mammary Tumors of Hybrid Mice. H. B. Andervont.—p. 391.
Susceptibility of Young and of Adult Mice to Mammary Tumor Agent. H. B. Andervont.—p. 397.
Estrus in Virgin Strain C3H (High Tumor) and Virgin Strain (Low Tumor) Mice and in Reciprocal (A × C3H) F_1 Hybrids. Margaret K. Deringer, W. E. Heston and H. B. Andervont.—p. 403.
Polarographic Response of Deproteinated Serum of Individual Rabbits Before and After Implantation with Brown-Pearce Carcinoma. B. B. Westfall, J. W. Thompson and D. Burk.—p. 407.
Further Studies on Urethane Induced Pulmonary Tumors. P. S. Henshaw and H. L. Meyer.—p. 415.
Implications from Studies with Physical Carcinogens. P. S. Henshaw. —p. 419.
Results of Homoplastic, Heteroplastic and Xenoplastic Transplantation of Optic Vesicle in Triturus and Rana. Margaret K. Deringer.—p. 437.
Changes in Organs of Female C3H Mice Receiving Thiourea. A. J. Dalton, H. P. Morris and Celia S. Dubnik.—p. 451.

Journal of Nervous and Mental Disease, New York

102:1-75 (July) 1945

*Relationship of Intracranial Pressure and Presence of Blood in Cerebrospinal Fluid to Occurrence of Headaches in Patients with Injuries to Head. A. P. Friedman and H. H. Merritt.—p. 1.
*Acute Spinal Epidural Abscess as Complication of Lumbar Puncture. L. Rangell and F. Glassman.—p. 8.
Pathology of Liver in Extrapyramidal Disease. G. Heilbrunn, O. Felsenfeld and P. Szanto.—p. 19.
Morbidity and Mortality of Patients with Psychosis Due to Cerebral Arteriosclerosis. O. J. Pollak.—p. 27.
Notes on History of American Psychopathological Association. S. W. Hamilton.—p. 30.
Concept of Integration in Psychoanalysis. J. J. Michaels.—p. 54.
Psychodynamics in Criminal Behavior. D. Abrahamsen.—p. 65.

Intracranial Pressure and Blood in Cerebrospinal Fluid After Head Injuries.—According to Friedman and Merritt, injuries to the head are often followed by persistent symptoms such as headaches, dizziness, loss of ability to concentrate and irritability. There are two divergent opinions: (1) that the symptoms are the results of structural changes in the brain or functional alteration of its circulation; (2) that they are due to psychologic reaction of the patient to the injury. The authors present data regarding the cerebrospinal fluid pressure and the presence of blood in the cerebrospinal fluid immediately following the injury in 265 patients with acute head injuries. These findings are correlated with the occurrence of headaches during the patient's stay in the hospital and for periods varying from two to twelve months after the injury. The incidence of headaches in the immediate post-traumatic period did not occur in a significantly higher percentage of the patients with an increased cerebrospinal fluid pressure or a bloody cerebrospinal fluid than in those with normal intracranial pressure or a clear spinal fluid. Headaches persisting for longer than two months following the injury occurred in a slightly higher percentage of the patients who had an increased cerebrospinal fluid pressure than in those with a normal pressure immediately following the injury. Headaches persisting for more than two months following the injury occurred in approximately the same percentage of patients who had a bloody cerebrospinal fluid as in those patients who had a clear fluid immediately after the injury. The authors conclude that headaches persisting for several months after a head injury cannot be related directly to the pathology of the brain injury.

Spinal Epidural Abscess Complicating Spinal Puncture.—Rangell and Glassman state that no case of epidural abscess has ever been reported following routine spinal puncture. They report the case of a soldier aged 28 in whom a lumbar puncture was followed successively by excruciating and progressive root pains, sphincter disturbances and a flaccid paraplegia. Because of localized pain, swelling, tenderness and spasm in the paravertebral muscles, fever, toxicity, systemic signs of infection, and objective findings of a cauda equina syndrome, a diagnosis was made of acute epidural abscess in the cauda equina region. Operation was performed and resulted in the finding of a thick, creamy, white pus in the region of the periosteum of the third and fourth lumbar spinous processes. Laminectomy was performed and the pus was seen to gush from an abscess in the epidural space. Following evacuation of pus a soft rubber catheter was passed cephalad through the epidural space to the level of the tenth thoracic vertebra, and no further pus was obtained. At no time was the dura opened. Sulfanilamide was sprinkled into the wound, and a Penrose drain was inserted upward under the arch of the second lumbar vertebra before closing. Improvement began promptly following the operation. Six weeks later the patient was up in a wheel chair and receiving daily physical therapy. There was a complete return of sensation and sphincter control but only a partial return of motor function.

Rocky Mountain Medical Journal, Denver

42:409-488 (June) 1945

Experiences in AAF Convalescent Program. W. J. Kennard.—p. 425.
Uses and Abuses of Sulfonamide Therapy: Review. J. J. Waring. —p. 432.
Uses and Untoward Reactions of Sulfonamides in Dermatology. O. S. Philpott.—p. 441.

42:489-559 (July) 1945

Horner's Syndrome. G. H. Stine and P. Draper.—p. 504.
Medical Service in Industry. L. V. Sams.—p. 507.
Fractures of Elbow. D. W. Boyer and S. A. Gale.—p. 510.
Management of Infertility. C. S. Gydesen.—p. 513.
Management of Pelvic Inflammatory Disease of Gonorrheal Origin. M. R. Gottesfeld.—p. 516.
Transmesenteric Hernia: Case. R. A. Corbett.—p. 519.

Surgery, St. Louis

17:773-900 (June) 1945

*Succinylsulfathiazole and Phthalylsulfathiazole in Surgery of Colon. E. J. Poth.—p. 773.
Elective Occlusion and Excision of Portal Vein: Experimental Study. A. Brunschwig, R. Bigelow and S. Nichols.—p. 781.
*Blast Injury of Lung: Possible Explanation of Mechanisms in Fatal Cases—Experimental Study. L. M. Carlton Jr., R. A. Rasmussen and W. E. Adams.—p. 786.
Metabolic Alterations Following Thermal Burns: IV. Effect of Treatment with Whole Blood and Electrolyte Solution or with Plasma Following Experimental Burn. W. E. Abbott, Frieda L. Meyer, J. W. Hirshfeld and Grace E. Griffin.—p. 794.
Role of Infection in Shock Produced by Muscle Injury. E. B. Mahoney, J. W. Howland and Kathryn Yackel.—p. 805.
Hydronephrosis: I. Structural Changes. F. Hinman.—p. 816.
Id.: II. Functional Changes. F. Hinman.—p. 836.
Id.: III. Hydronephrosis and Hypertension. F. Hinman.—p. 845.
Principle of Excision and Dissection in Continuity for Primary and Metastatic Melanoma of Skin. G. T. Pack, Isabel Scharnagel and M. Morfit.—p. 849.
Virilism in Women. V. Brito and A. Rivero.—p. 867.
Appendical Peritonitis. A. Ochsner and J. H. Johnston.—p. 873.

Succinylsulfathiazole and Phthalylsulfathiazole in Surgery of Colon.—According to Poth the mortality of surgery of the colon has been reduced more in recent years than is explainable by improvement in surgical technic. The evidence which has accumulated over the past four years indicates that succinylsulfathiazole (sulfasuxidine) and phthalylsulfathiazole (sulfathalidine), when given in adequate doses, are bacteriostatic agents which will produce a significant modification of the bacterial flora of the bowel and that their proper administration will help to give a satisfactory mechanical preparation of the bowel preceding surgical operations while the patient is maintained on an adequate protein and carbohydrate diet. Acylated sulfonamides alter and simplify the bacterial flora of the gastrointestinal tract. The question is raised as to whether such a modification is of practical value in making surgery of the large bowel a safer procedure. The first report on a series of 50 patients receiving succinylsulfathiazole both preoperatively and postoperatively when operations were performed on the colon was by Poth in 1942. No fecal fistulas developed, there were no instances of peritonitis and there were no deaths. In 1943 Allen expressed the opinion that with the use of succinylsulfathiazole there was a tendency to increase the number of single stage operations on the large bowel. By 1945,

this author considers phthalylsulfathiazole the drug of choice for the preoperative management of patients with carcinomas of the colon, because this drug shows no tendency to cause increased hemorrhage from ulcerating lesions. Poth emphasizes that succinylsulfathiazole and phthalylsulfathiazole are properly used only as aids in colonic surgery and should not encourage a breakdown in surgical principles. So-called aseptic procedures should be used whenever possible, but, when necessary, an open anastomosis can be done with a greater degree of safety than was possible formerly.

Mechanism of Fatal Blast Injury of Lung.—In recent experiments on the production of emphysema by overdistention of the lung with increased intrabronchial pressure it was noted by one of the authors that if the dogs coughed and thus increased the pressure they suddenly died. At necropsies it was noted that air emboli were present in the coronary vessels. Eighteen dogs were subjected to increased intrabronchial pressure. The first group of 8 dogs was subjected to pressures of from 35 to 50 mm. of mercury for a period of a few seconds to fifteen minutes. The second group of 10 animals was subjected to a blast varying from 70 to 110 mm. of mercury. Two animals received a blast of 120 and 240 mm. of mercury, respectively. The animals of the first group died after an episode of coughing. Those of the second group died within a few seconds to three minutes after the blast. The cause of death was found to be air embolism in 15, with pneumothorax as a contributory factor in 8. Pneumothorax appeared to be the sole cause of death in the remaining 3. Other gross findings noted in these animals were similar to those reported in human beings following blast injury. In some patients dying immediately after a blast injury the cause of death has not been adequately explained. Coronary air embolism may be easily overlooked and might well be the cause of death in some cases of blast injury.

War Medicine, Chicago

7:341-436 (June) 1945

*Malarial Papillitis. R. B. Lewy.—p. 341.
Defects of Pemmican as an Emergency Ration for Infantry Troops. R. M. Kark, R. E. Johnson and J. S. Lewis.—p. 345.
Simple Exertional Electrocardiography as Aid in Diagnosis of Coronary Insufficiency: Experiences in Army General Hospital. J. B. Levan. —p. 353.
Some Psychologic Principles of Rehabilitation. F. Lemere.—p. 360.
Experiment in Physical Reconditioning at Camp Crowder. V. A. Mueller Jr. and L. K. Silverman.—p. 365.
War Department Technical Bulletins: Cholera.—p. 371.
Id.: Filariasis (Wuchereria), with Special Reference to Early Stages. —p. 377.
Id.: Cutaneous Diphtheria.—p. 385.
Id.: Amebiasis.—p. 390.
Id.: Schistosomiasis Japonica.—p. 397.

Malarial Papillitis.—The total number of patients examined by Lewy for evidence of papillitis was 60. Some blurring and/or color change in the optic disk was presented by 36, while the other 24 presented no change. Ocular symptoms were usually mild. Many of the patients said that their eyes tired easily. A number stated that they had blurring of their vision at about 50 yards. Many of these patients had headaches, but this had to be discounted as this symptom was common to many patients with malaria who had no ocular changes. Visual loss shown on the Snellen test chart was from 20/15 to 20/20 or 20/20 to 20/25. One patient lost vision to 20/100 in the right eye and 20/400 in the left. It is recognized that the difference between papillitis and papilledema may be slight ophthalmoscopically. It is also recognized that exudate or edema may be present in the neural or supporting tissue of the optic nerve as a product of either inflammation or stasis. This condition is considered a papillitis because of the injected appearance of the nerve head in the majority of the patients and because many showed a disturbance in the ocular physiology, e. g. diminution in visual acuity, reduced peripheral fields and enlarged blind-spot scotomas. No absolute correlation could be made between the amount of papillary change and the number of attacks of malaria. The condition has been observed in patients with one attack and with eighteen. The question may be raised whether medication is the cause. None of this group of patients presented the retinal ischemia, arterial spasm and blindness characteristic of quinine amblyopia, which is often the cause of toxic retrobulbar neuritis resulting in complete central blindness and pallor of the disk. One patient had a characteristic picture of the nerve head although he had never received quinacrine hydrochloride. The great increase in the use of quinacrine hydrochloride coincided with a drop in the incidence of malaria and papillitis. This should remove suspicion from quinacrine hydrochloride as a causative factor. There were many patients with papillitis that never received pamaquine naphthocate.

Yale Journal of Biology and Medicine, New Haven

17:685-760 (July) 1945

*Starvation Diabetes: Reason for Use of Glucose in Treatment of Diabetic Acidosis. J. P. Peters.—p. 705.
Diurnal Potential in Maple Tree. H. S. Burr.—p. 727.
Health Services for Hospital Personnel: IV. Typical Year's Experience in Personnel Health Service. A. J. Geiger and Irma M. Biehusen. —p. 735.
Mating in Relation to Pregnancy in Monkey. G. van Wagenen.—p. 745.

Reason for Use of Dextrose in Diabetic Acidosis.—Peters shows that extreme reduction of carbohydrate in the diet lowers the tolerance for dextrose. The phenomena of starvation diabetes have been attributed to variations in the secretion of insulin by those who hold that every fluctuation in the combustion of carbohydrate depends on a change in the secretory activity of the islands of Langerhans. Such a theory is not compatible with the facts. Although the exact modus operandi of insulin on the metabolism of carbohydrate is not known, it has been established that its preponderant action is to accelerate oxidation of muscle glycogen and that it has no direct effect on the formation or breakdown of liver glycogen. Every substance that is capable of forming carbohydrate is converted to glucose by the depancreatized animal. Since almost all compounds except dextrose must be transformed to glycogen by the liver as a preliminary step in the conversion to glucose, this in itself constitutes proof that hepatic glycogenesis does not require insulin. Among the disorders encountered when the combustion of carbohydrate is impaired or retarded, the most prominent are increased protein catabolism and ketosis. The literature on diabetes in the era from 1915 until insulin was in general use abounds in papers in which acidosis is attributed to the failure of patients to adhere to dietetic regimens that could only have led to slow death from malnutrition or from tuberculosis and other diseases that prey on the malnourished. The aim of treatment was to keep the urine free from sugar, regardless of the nutritive needs of a patient. It was known that although loss of sugar in the urine increased progressively as the carbohydrate in the diet was raised above the amount required to induce glycosuria, there was a wide zone within which only a part of added increments of sugar were excreted, another example of the acceleration of carbohydrate utilization by hyperglycemia. This led some to advocate the prescription of enough carbohydrate to insure the utilization of the largest quantity that could be accomplished without producing distressing polyuria. With the advent of insulin such expedients were no longer necessary. Nevertheless, the mental attitude, including the doctrine that ketosis is the wages of dietary sin, has been slow in dying. Diabetic acidosis and the coma in which it culminates mark the most extreme diabetic state. The most urgent therapeutic indications are restoration of the fluid and salt supplies of the body and the integrity of the circulation and elimination of the ketosis and glycosuria which are responsible for the salt and water depletion. Reversal of the metabolic disorder requires the administration of insulin and the provision of sugar. The routine prescribed for the patient in diabetic acidosis consists in the injection of 50 units of insulin. An intravenous infusion of 500 cc. of 10 per cent dextrose solution is then begun, together with subcutaneous injection of isotonic solution of sodium chloride. The patient is prohibited from receiving anything by mouth. After the first priming dose of 50 Gm., dextrose is given intravenously at the rate of about 10 Gm. per hour with doses of 20 to 40 units of insulin at the same intervals until the blood sugar begins to descend definitely. At this time dextrose is given at a faster rate (about 20 Gm. per hour), while the insulin is reduced to half or less of its earlier dosage, according to the course of the blood sugar. Oral administration of fluids is not begun until the patient has been completely conscious and entirely free from all gastrointestinal symptoms for from two to six hours.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian and New Zealand J. Surgery, Sydney

14:219-270 (April) 1945

Subtotal Colectomy. H. Devine.—p. 219.
Headache and Heterophoria Among Soldiers. H. Coverdale.—p. 231.
Results of Operations for Peptic Ulcer: Investigation of Cases Over a Ten Year Period at the Royal Melbourne Hospital. R. S. Lawson.—p. 233.
*Malignant Exophthalmos or Exophthalmic Ophthalmoplegia. C. Robertson.—p. 262.
Treatment of Battle Casualties in Central Mediterranean Area. E. Button.—p. 266.
Surgical Approach to Hydatid Cysts of Right Dome of Liver. S. C. Fitzpatrick.—p. 269.

Malignant Exophthalmos.—Robertson reports 9 cases in which exophthalmos increased in spite of the relief of the toxic symptoms. The suggestion that some different factor is at work in the production of malignant exophthalmos, as against the exophthalmos of ordinary toxic diffuse goiter, receives strong presumptive evidence when we compare the age and sex grouping in the two conditions. Toxic diffuse goiter is a disease of early adult life and is much more common in females, while in the malignant type exophthalmos occurs in patients aged 40 years or over and sex incidence is almost reversed. Of the 9 patients 6 were men and 3 women. In many cases the disease gradually dies out; but it often leaves the patient with an unsightly deformity and sometimes double vision. Only occasionally has a complete regression of the exophthalmos occurred. In other cases the condition progresses until the disorganization of the eyeball is so great that excision of the globe has to be performed. It is now generally accepted that there is an edema of all the orbital tissues outside the globe, and this increase in size of the orbital contents pushes the eyeball forward. It also restricts the free movements of the eyeball. It seems certain that the hormone responsible for the orbital edema is different from the one which produces the other signs of thyrotoxicosis. Since edema is a sign of water imbalance and since water balance is influenced by the pituitary gland, a pituitary hormone may be involved. Robertson treated 4 patients with Naffziger's method of decompression of the orbit; 1 had excision of the stellate ganglion; 2 had high voltage x-ray therapy to the pituitary gland. None of these methods produced the desired results; some patients lost 1 or both eyes. Three patients, in whom the metabolic rate was slightly minus following thyroidectomy, were given thyroid when the eyelids became edematous and ophthalmoplegia appeared. The resulting increase in the metabolic rate increased the loss of body fluids and the eyes receded. In 5 cases in which no surgical measures were adopted the treatment consisted in raising the basal metabolic rate so as to increase water excretion. In all of them the disease has been controlled.

British Journal of Dermatology and Syphilis, London

57:85-124 (May-June) 1945

Sulfanilamide Determination in Spontaneous and Cantharidin Blisters in Vesicular Affections of Skin (Pemphigus, Dermatitis Herpetiformis, Herpes Gestationis, Epidermolysis Bullosa Hereditaria). A. Dostrovsky and F. Sagher.—p. 85.
*Treatment of Sycosis Barbae by Penicillin Cream. A Burrows, B. Russell and H. B. May.—p. 97.
Relationship of Acne and Hypertrichosis. E. L. Cohen.—p. 102.

Penicillin Cream in Sycosis Barbae.—Burrows and his co-workers report observations on 21 patients in whom they used penicillin cream. When bacteriologic examination had disclosed that the predominant organism was penicillin sensitive the patient was provided with a pot of penicillin cream containing 200 units of penicillin per gram. The sterile cream base can be kept in screw capped jars indefinitely, and when penicillin cream is needed a jar can be warmed to 60 C. and the penicillin solution added to obtain the concentration required. Little stirring is necessary, as the penicillin diffuses readily in the cream base. The patient was instructed in the technic of the aseptic removal of the cream from the jar. A knife or a spoon can be sterilized by boiling in water for three minutes and cooled under a running tap; the cream is removed from the jar and spread on clean lint and thence applied thinly to the affected area twice a day. Of the 21 cases of sycosis barbae investigated bacteriologically, 19 were caused by a penicillin sensitive strain of staphylococcus. Of 13 cases with a history of more than one year 6 were cleared in an average time of six weeks and 6 were improved over an average period during the same period. Of 6 cases with a history of less than one year 4 were cleared in an average time of two and one-half weeks and 1 was improving over a period of five weeks. No improvement resulted from the treatment of 2 cases due to insensitive strains of bacteria. In order to lessen the tendency to relapses the authors recommend (1) application of the penicillin cream to the anterior nares as well as to the skin of the beard area, (2) treatment of nasal discharges, blepharitis, or otitis media or externa if present, (3) treatment of any other manifestations of the seborrheic state, (4) elimination of foci of sepsis in the throat, teeth and sinuses, (5) continuation of treatment for a few weeks after apparent cure, (6) use of the cream prophylactically after relapses or if nasal swabs remain persistently positive, (7) instruction of the patient to discard his infected shaving brush and face flannel or sterilize them by boiling or to use a brushless shaving cream and (8) consideration in severe cases of the use of x-ray epilation in conjunction with penicillin.

British Heart Journal, London

7:57-106 (April) 1945

Heart Block Following Diphtheria. D. G. Leys.—p. 57.
Auricular Fibrillation and Auricular Flutter in Diphtheria. C. Neubauer.—p. 59.
*Heart Block and Simulation of Bundle Block in Diphtheria. H. Cookson.—p. 63.
*Electrocardiographic Changes and Effect of Niacin Therapy in Pellagra. M. Rachmilewitz and K. Braun.—p. 72.
*Blood Volume Determinations with Radioactive Phosphorus. G. Nylin.—p. 81.
Sinus Bradycardia with Cardiac Asystole. R. S. B. Pearson.—p. 85.
Ligature of Patent Ductus Arteriosus. G. Bourne.—p. 91.
Ligation of Patent Ductus Arteriosus. T. East.—p. 95.
Morphine Hypersensitivity in Kyphoscoliosis. R. Daley.—p. 101.
Transient Heart Block and Coronary Occlusion in Pleural Shock. D. R. Cameron.—p. 104.

Heart Block in Diphtheria.—Cookson investigated 83 cases of diphtheria and took cardiograms at intervals throughout the illness. In 63 patients, or more than three fourths, the cardiogram was abnormal. Ten of these showed some defect of conduction; the others, inversion of T in one or more leads. Other abnormalities commonly seen were axis shift, slurring and slight widening of QRS, and bizarre P waves. Clinical and cardiographic findings are given of 8 cases showing conduction changes. Of 4 with latent block, a prolonged PR interval has persisted in 1 for five months. Bundle branch block appeared in 4 unimmunized children aged 12 or less, and all died; complete block was recorded in 1 of the 4. In 2 others bizarre ventricular complexes were found in association with a passive ectopic rhythm; at first sight these suggest a bundle branch lesion: but, like the short PR, wide QRS syndrome, which seems a related condition, these changes do not appear to have prognostic significance.

Electrocardiographic Changes and Niacin in Pellagra.—Rachmilewitz and Braun studied the effect of niacin therapy on the cardiographic changes in 27 patients suffering from pellagra. In 16 of them with pronounced visceral manifestations of the disease the response to niacin was prompt; the cardiogram improved or returned to normal after several days of treatment. In some cases thiamine was given without any effect; these cases responded promptly to subsequent niacin treatment. In 2 cases complicated by severe hypoproteinemia the response to the first trial with niacin was slight or absent. Only after restoration of blood proteins was the effect of niacin on the cardiographic changes observed. In 9 cases in which only skin lesions were present no cardiographic abnormalities were found and no changes followed treatment.

Blood Volume Determinations with Radioactive Phosphorus.—By the application of a new method worked out by Hevesy and his co-workers, employing blood corpuscles labeled with radioactive phosphorus, Nylin determined the circulating blood volume and on both normal persons and patients with

cardiac defects with and without failure. The prerequisite for the determination of the circulating blood volume is that the dilution curves can be established and thereby the time when equilibrium appears. The results in each case were based on the mean values of a number of determinations. The mean value for the amount of the circulating blood corpuscles in normal cases was found to be 1,850 cc., 1,998 Gm., or 33.4 Gm. per kilogram of body weight. The mean value for the compensated cases is in agreement with the normal values at 1,795 cc., 1,939 Gm. and 31.8 Gm. per kilogram of body weight. The total blood volume in the normal cases is 73.5 cc. per kilogram of body weight and in the compensated cases 71.8 cc. Two cases of heart failure—and particularly 1 of them—showed a considerable increase in both the amount of blood corpuscles and the circulating blood volume. The other case has been followed with repeated determinations after all signs of failure had disappeared, a great decrease in the circulating blood volume of no less than 28 per cent taking place simultaneously with the appearance of the interesting phenomenon that the amount of red blood corpuscles also decreased by 18 per cent.

British Journal of Industrial Medicine, London

2:65-124 (April) 1945

Health Problems in the Merchant Navy. G. J. Carr.—p. 65.
Some Early Effects of Exposure to Trinitrotoluene. Alice Stewart, L. J. Witts, G. Higgins and J. R. P. O'Brien.—p. 74.
Determination of Air Borne Trinitrotoluene, Tetryl and Dinitrotoluene. W. M. Cumming and W. G. D. Wright.—p. 83.
Study of Absence from Work Among Women in War Factory. S. Wyatt.—p. 86.
Asthma Caused by Complex Salts of Platinum. D. Hunter, R. Milton and K. M. A. Perry.—p. 92.
Determination of Traces of Platinum and Palladium in Atmosphere of Platinum Refinery: Combined Chemical and Spectrographic Method. S. J. R. Fothergill, D. F. Withers and F. S. Clements.—p. 99.
Therapeutic Use of Sodium Chloride in Industry. D. Stewart.—p. 102.

Journal of Mental Science, London

91:153-266 (April) 1945

What is Meant by Personality? E. L. Hutton.—p. 153.
Study on Some Clinical Aspects of Relationship Between Obsessional Neurosis and Psychotic Reaction Types. E. Stengel.—p. 166.
*Masquerading in Uniform: A Wartime Form of Psychopathic Behavior. H. Stalker.—p. 188.
Report of Case of Bilateral Degeneration of the Globus Pallidus. R. Mowbray and H. K. Fidler.—p. 195.
Experience with a Simplified Lightweight Apparatus for Electrical Induction of Convulsions. G. Caplan.—p. 200.
Technic of Child Psychiatry. Kathleen Todd.—p. 206.
Relation of Histamine Headache to Postcontusional and Psychogenic Headache. M. N. Pai.—p. 213.

Masquerading in Uniform.—Stalker reports the histories of 7 patients guilty of unlawfully wearing military uniform or medals. All the patients showed a serious disorder of personality existing long before the war. This personality disorder was the prime cause of that form of abnormal behavior with which they reacted to the war situation. In most of the cases arrest and treatment had no remedial effect, similar behavior being repeated when opportunity came. These cases belong to Henderson's "predominantly inadequate" class of psychopatic states, described by him as almost more consistently abnormal or immoral, more malignantly involved in their individual tendency than the members of the more definitely aggressive group. It is a self centeredness which takes no thought of others and has for its aim the individual's self gratification and glorification irrespective of what consequences may follow. They are both narcissistic and exhibitionistic; altruism has little or no place. Such states of mind exhibit a detachment from reality, an altered consciousness, a form of split-mindedness where attention is difficult to gain and where phantasy and romance lead up to situations which are more or less obvious overcompensations for the failure to adapt to actual conditions. In each case there was some family history of psychosomatic, psychopathic or general psychiatric disorders but not enough to show that the patients' conditions were hereditary. A history of more physical ill health than the average was obtained in 6 of the cases, and the general physical development was poor in 3. One can see here a mechanism on adlerian lines of overcompensation for physical inferiority.

Lancet, London

1:697-710 (June 2) 1945

Medical Problems of Southeast Asia Command. H. L. Marriott.—p. 679.
Knee Injuries in Soldiers. L. H. Wilkinson and H. A. Burt.—p. 684.
*Field Method of Estimating Quinacrine Hydrochloride in Urine. E. J. King and Margaret Gilchrist.—p. 686.
*Indirect Determination of Plasma Quinacrine Hydrochloride During Therapeutic Course. M. Brown and J. L. Rennie.—p. 686.
*Indirect Determination of Plasma Quinacrine Hydrochloride in Subjects on a Suppressive Regimen: Method Suitable for a Field Laboratory. Army Malaria Research Unit, Oxford.—p. 687.
Periarteritis Nodosa: Report of Case. J. A. R. Bickford and A. I. D. Prentice.—p. 689.

Estimating Quinacrine Hydrochloride in Urine.—The method described by King and Gilchrist for use in the field is as follows: Quinacrine hydrochloride is extracted from alkaline urine into ether or paraffin, washed with sodium hydroxide, dissolved in normal hydrochloric acid, and the color measured against yellow glass disks in a Lovibond comparator. The procedure is an adaptation of previous methods. Results by this method have agreed well with photoelectric and fluorimetric determinations of quinacrine hydrochloride in a large number of urines from patients taking the drug.

Determination of Quinacrine Hydrochloride in Plasma.—Brown and Rennie say that specimens of plasma and urine obtained from patients who are receiving a therapeutic course of quinacrine hydrochloride have shown a relation between the concentration of quinacrine hydrochloride in the plasma and urinary quinacrine hydrochloride and ammonia concentrations which is almost as strict as the relation in subjects on a suppressive quinacrine hydrochloride regimen described by the Army Malaria Research Unit. The terms of the relation are different in the two groups of patients. The terms of the equation should be defined with each new regimen of drug administration before proceeding to the indirect determination of plasma quinacrine hydrochloride through observations on the urine. The authors describe studies on patients receiving therapeutic doses and on patients receiving suppressive treatment with quinacrine hydrochloride. They give the regression equations for both groups. Indirect determination of plasma quinacrine hydrochloride from observations on the urine is almost as accurate as the direct method and is much simpler and quicker. The army malaria research unit describes a method suitable for use in field laboratories for the indirect estimation of plasma quinacrine hydrochloride in subjects on doses of 0.1 Gm. daily from analyses of urine only. The errors of this method using duplicate determinations are of the same order as those of the mean of triplicate direct determinations.

Medical Journal of Australia, Sydney

1:505-528 (May 19) 1945

Bacteriologic Findings in Series of Cases During the 1943 Moorabbin Epidemic of Typhoid, with Special Reference to the Cultural Examination of Bile. Hilda J. Gardner.—p. 505.
Bacteriologic Study of 50 Patients in the 1943 Moorabbin Typhoid Epidemic. J. C. Tolhurst, G. Buckle and A. Hyams.—p. 510.
Problem of Selection of Medical Students for Admission to Quota for Medical Course. E. S. Meyers.—p. 515.
*Physiologic Consideration in Vascular Surgery: Ligature of Main Arteries to Limbs. L. Rogers.—p. 517.

Physiologic Considerations in Vascular Surgery.—According to Rogers, repair of the arteries under war or any other conditions is but rarely possible, and if an artery has to be tied care must be taken to ensure minimal interference with peripheral circulation. The artery should be secured in two places and divided between ligatures rather than tied in continuity. Division permits the ends to retract and may suppress a generalized vasospasm. Moreover, embolism from the site of the ligature is less likely to take place from a divided vessel. It is advisable to tie the artery just below a large branch rather than to leave a blind end into which there is a blood flow with each pulse beat; for example, the femoral artery should be tied just below the origin of the profunda rather than an inch or 2 lower in Hunter's canal. Furthermore, the distal ligature should also be placed near, that is, just above, a large branch, and the intervening part of the artery should be resected. For example, in the case of the brachial artery there is less interference with the circulation in the hand and fingers if the artery is tied just distal to the origin of the superior profunda and again just proximal to the origin of the inferior profunda, and

the intervening part resected, than if the vessel is tied and divided somewhere between the two branches. The accompanying main vein should also be ligated. Rapid transfusion of 800 to 1,200 cc. of blood, by increasing the blood pressure and forcing open capillaries, has proved valuable.

Annales d'Oto-Laryngologie, Paris

10:133-184 (Oct.-Nov.-Dec.) 1944

*Cortical Deafness. J. Lemoyne.—p. 133.
Etiology and Pathogenesis of Auricular Herpes Zoster with Generalization. R. Melchior.—p. 141.
Case of Cerebrospinal Rhinorrhea: Cure by Surgical Intervention. A. Aubin, R. Martin, Klein and Sureau.—p. 147.
Difficulties of Determining Primary Carcinoma of the Middle Ear from Its Initial Period. A. Hautant.—p. 151.

Cortical Deafness.—Lemoyne says that the auditory tract is only partially crossed and a unilateral temporal lesion does not impair hearing. It is a tract with two relays and comprises three neurons. The first neuron runs from Corti's ganglion to the bulbar nuclei: this is the cochlear nerve. The second neuron, or the bulbodiencephalic neuron, runs from the dorsal and ventral bulbar nuclei to the internal geniculate body. In this second segment the auditory tract is partly crossed. The crossed bundle comprises a superficial part (acoustic striae of the fourth ventricle), a deep part which at the level of the corpus trapezoideum constitutes the chief intercrossing of the auditory tract. The third neuron, the auditory radiations, runs from the internal geniculate body to the transverse temporal convolution, which comprises the center of the cortical projection of the auditory tract. This segment of the auditory tract assumes a special importance in the study of cortical deafness. The author presents the history of a patient presenting two associated types of disturbances: (1) a severe bilateral hypoacusia with dissociation of the aerial bone perception; (2) a psychic deafness with total agnosia and disturbances of Wernicke's aphasia. He discusses the existence of cortical deafness and differentiation between cortical deafness and bilateral labyrinthine deafness. The requirement of lesions involving the two transverse temporal convolutions explains the rarity of cortical deafness. A right temporal lesion has no effect; a left temporal lesion either has no effect or causes Wernicke's aphasia; in bilateral temporal lesions either aphasia is evident or cortical deafness can pass unobserved and requires systematic investigations with the audiometer, or cortical deafness dominates but gives the impression of a labyrinthine deafness.

Presse Médicale, Paris

53:57-68 (Feb. 3) 1945

*Physiologic Principles of Treatment with Acetylcholine: Its Indication in Essential Hypotension and Acute Collapse, Its Dangers in Hypertension. D. Danielopolu and D. Crivetz.—p. 57.
Remarks on Diencephalic Localization of Epilepsy: Clinical Case. J. A. Chavany and M. Feld.—p. 58.
Group Effect in Physiology: L. Binet and F. Bourlière.—p. 59.
Benzyl-Imidazoline in Treatment of Raynaud's Disease. A. Ravina.—p. 64.
Late Acute Intestinal Occlusion in Laparotomized Patients. R. Desjacques.—p. 64.

Acetylcholine: In Hypotension and Hypertension.—According to Danielopolu and Crivetz, acetylcholine provokes in the terminal organ a parasympathicomimetic cellular response which elicits an immediate compensatory sympathicomimetic cellular reaction, which in turn results in the liberation of sympathin. The response and the reaction form a whole, to which the authors apply the term amphomimetism. The parasympathicomimetic response is more intense than the sympathicomimetic reaction. As a result, acethylcholine has an amphomimetic action with parasympathetic predominance. It inhibits the heart and vessels. After atropine, which impedes the parasympathicomimetic action, acetylcholine becomes exclusively sympathicomimetic: from a vasodilator it becomes a vasoconstrictor. The authors have demonstrated that atropine, which in the terminal organ impedes the parasympathicomimetic action of acethylcholine, not only does not impede its epinephrine secreting action in the adrenal medulla but favors it by inactivating the cholinesterase. Investigations on the physiologic role of acethylcholine have revealed that many important organs are stimulated by it; besides, it is liberated at the level of all the synapses constituting the natural excitant of neurons and assuring the circulation of the nervous influx. Regarding the therapeutic implications of their investigations, they say that what is called essential hypotension or hypoamphotony is only a vascular manifestation of the general reduction of the vegetative tonus, both sympathetic and parasympathetic. This state is accompanied by a hypofunctioning of all the organs. In these conditions the authors make daily subcutaneous injections of from 0.2 to 0.5 Gm. of acetylcholine. This substance augments the terms of all the parasympathetically controlled organs and increases the secretion of epinephrine. Acetylcholine treatment is the preeminent tonic treatment. Without waiting for a permanent increase in blood pressure, it activates the functioning of all organs and of the nervous system. Strychnine in increasing doses is added to acetylcholine because by its action on the chronaxia it augments the tonus of certain centers. In acute collapse the authors know no more effective treatment than acetylcholine after an intravenous injection of 1.5 mg. of atropine sulfate, because the acetylcholine stimulates a prolonged secretion of epinephrine, whereas the administration of epinephrine has only a fleeting effect. Strychnine is added to acetylcholine in these cases. Because acetylcholine stimulates the secretion of epinephrine even when injected subcutaneously, it is contraindicated in hypertension. It can sometimes decrease the blood pressure, but the phases of sudden hypotension alternating with hypertension constitute a danger. Acetylcholine is contraindicated when arteritis obliterans supervenes in a patient with hypertension.

Boll. d. Soc. Ital. d. Med. e Ig. Trop., Asmara

4:535-750 (Sez. Erit.) 1944. **Partial Index**

*Acute Pelvic Varicocele and Sclerocystic Degeneration of Ovaries: Role in Pathogenesis of Hemoperitoneum from Spontaneous Rupture of Lutein Cysts. F. de Francesco and V. Di Meglio.—p. 535.
Lavage of Lateral Cerebral Ventricles with 2 p-Aminosulfamide-Pyridine in Therapy of Intracranial Suppuration in Open Fractures. M. Manfredonia.—p. 727.

Pathogenesis of Acute Hemoperitoneum.—De Francesco and Di Meglio performed operations on 22 women for symptoms of acute hemoperitoneum. Spontaneous rupture of a hemorrhagic lutein cyst was the cause of bleeding. Acute pelvic varicocele, cystic degeneration and sclerosis of the ovaries were encountered in all. The authors believe that pelvic varicocele with consequent cystic sclerosis of the ovaries is caused by nutritional and vascular disorders of the lumbo-ovarian ligament. These factors are the result of repeated pregnancies, local chronic inflammation and constitutional neurohormonal deficiency. The last factor is the one most frequently encountered. It is also the cause of the transformation of the corpus luteum into a lutein cyst with fragile walls which suddenly rupture. The intervention consists in partial resection of the ovary or ignipuncture of the ovarian cysts, subtotal resection of varicose veins in the segment of the ligament most accessible during the operation and sympathectomy of the fibers which supply the ovarian ligament.

Nordisk Medicin, Stockholm

24:2161-2202 (Dec. 8) 1944

Hospitalstidende

Complications and Dangers in Liver Biopsy. K. Raby.—p. 2161.
Evaluation of Liver Function Tests. (Takata-Ara Reaction, Quinine Resistant Lipases in Serum, Serum Phosphatase and Serum Citric Acid). M. Iversen.—p. 2164.
Cases of Liver Biopsy in Chronic Alcoholism: (Preliminary Report). K. Raby.—p. 2170.
Histopathology of Liver in Infectious Mononucleosis Complicated with Jaundice Examined by Aspiration Biopsy. J. Bank and O. Wanscher.—p. 2175.
Result of Gonadotropin Treatment of 70 Men with Lowered Fertility. R. Hammen and S. Felding.—p. 2178.

Hygiea

Electrocardiogram Changes Due to Action of Vagus. J. Lind.—p. 2181.
*Observations in Poliomyelitis Epidemic. K. G. Dhunér.—p. 2187.

Poliomyelitis Epidemic.—Dhunér reports that of 307 cases of poliomyelitis from the 1943 epidemic in southern Sweden 27 were fatal. There were 31 cases of polioencephalitis. In 22 women poliomyelitis was complicated by pregnancy; in the known 10 living children born neither paralysis nor muscular atrophy was demonstrable.

Book Notices

A Textbook of Ophthalmology. By Sanford R. Gifford, M.A., M.D., F.A.C.S. Third edition. Cloth. Price, $4. Pp. 457, with 232 illustrations. Philadelphia & London: W. B. Saunders Company, 1945.

This edition, which was completed by Dr. Gifford before his death, presents a thoroughness and care of presentation similar to that characterizing the previous editions. There has been little if any change in the original text, but the author has included some of the newer advances in diagnosis and therapy. In the discussion of ptosis, which is exceptionally well covered for a small textbook, he has included the Dickey operation, which uses a fascia lata sling connecting the superior rectus muscle to the upper tarsal plate. Dr. Gifford was partial to this operation, although it has not gained universal popularity. Included is a paragraph on the subject of contact glasses, in which he is emphatic in the fact that there is considerable difficulty encountered in the wearing of them. An addition to the discussion of the treatment of glaucoma includes the use of cyclodiathermy of the ciliary body for central retinal vein thrombosis. Epidemic keratoconjunctivitis has also been included. In the brief section on cataract surgery the author is partial to a corneoscleral suture.

It is unfortunate that the use of penicillin has not been included. No mention is made of leptothrix as a cause of epiphora in the chapter on diseases of the lacrimal apparatus. There are a number of additional illustrations, some in color. Throughout the book the discussions are practical and concise, the illustrations carefully designed to supplement the text, the contents succinct and well organized. The book is deserving of its popularity and is to be recommended to the medical student and general practitioner as well as to the ophthalmologist.

Arterial Hypertension: Its Diagnosis and Treatment. By Irvine H. Page, M.D., and Arthur Curtis Corcoran, M.D. Cloth. Price, $3.75. Pp. 352, with 12 illustrations. Chicago: Year Book Publishers, Inc., 1945.

To those who know of the work done by the authors on the treatment of hypertension with kidney extracts this book will be a surprise. Only two of its pages are devoted to the treatment of hypertension by kidney extract; and this brief section concludes with the statement that "it would be premature to attempt to form any considered judgment about these extracts."

Section I considers normal blood pressure, the classification of hypertension, tests for measuring vascular responsiveness, and early stages of hypertension. In section II, essential and malignant hypertension, the findings on physical examination, and the psychotherapy of hypertension are discussed. Section III is devoted to "the cardiovascular evolution of the disease." The basic factor in hypertension is increased vascular resistance, which is concentrated in the arterioles. The exception to this rule is found in the heart itself, where the injury is to the coronary arteries. A brief discussion of electrocardiographic changes is included in this section.

Section IV discusses hypertensive or coronary heart disease, including angina, coronary occlusion and congestive heart failure, the effects of arterial hypertension on the brain and on the kidneys, and hypertension and pregnancy. An optimistic view is taken of pregnancy in the woman with moderately elevated blood pressure. "With mild hypertension, pregnancy need not be discouraged; with severe hypertension it is contraindicated." The fetal risk, however, is much greater than is the maternal.

Section V takes up the treatment of essential hypertension. After an evaluation of the therapeutic effectiveness of thiocyanate, kidney extract and vitamin A, the authors discuss the surgical treatment of hypertension by nephrectomy in the occasional case in which unilateral kidney disease is found. Finally the various operations for removing part or all of the sympathetic nerves are considered. The conclusion is reached that "if the circumstances are suitable . . . an adequate sympathectomy can be followed by significant therapeutic results. But the suitability of the circumstances is not always easy to determine."

The clinician may question some of the authors' conclusions, which are rather dogmatic. For example, in the discussion of coronary thrombosis it is said that the blood pressure may fall greatly at the onset but "rises in forty-eight hours to its preinfarction level and a secondary moderate decrease appears between the twelfth and the twentieth day." Most clinicians have found that the pressure may rise, even considerably, with the onset of the pain, and that it usually falls within twelve to forty-eight hours after the onset of the attack and stays down for weeks or months.

Doubtless a typographic error was responsible for the excessive dose of chloral hydrate prescribed (p. 85) in the "hypertensive mixture": 320 Gm. in a 240 cc. mixture, to be taken "4 cc. once, twice or three times a day."

In view of the widespread interest in the rice diet advocated by Dr. Walter Kempner of the Duke University School of Medicine, one wonders why mention of it was omitted, while the total sympathectomy of Grimson, who is from the same school, was discussed in detail. Kempner has reported a far larger series of cases than has Grimson.

These criticisms are not intended to detract from the value of the book. Although the mystery of arterial hypertension is still far from being solved, this is an important contribution and will help to clarify our thinking on the subject.

Modern Psychiatry. By William S. Sadler, M.D., F.A.P.A., Consulting Psychiatrist to Columbus Hospital, Chicago. Cloth. Price, $10. Pp. 896. St. Louis: C. V. Mosby Company, 1945.

The author begins his book on psychiatry with a long section on personality problems. This is followed by chapters on the psychoneuroses, the psychoses and finally on therapeutics. Thus the approach in this book is distinctly modern, for the descriptive accounts of the various psychoses as seen in the clinic or hospital occupies only a small part of the volume. This is a distinctly individual work, reflecting the author's interest in what he terms "personology." Dr. Sadler places before the general practitioner of medicine, as well as before specialists and psychiatrists, the problems of personality and maladjustment as seen in many "normal" persons. The psychoneuroses and the psychoses are given secondary consideration. In putting the material in this order he emphasizes the larger aspects of psychiatry and minimizes the field of the custodial care of psychotic persons. The book offers a sound approach to psychiatry in general but the text is weakened by redundant material, generalizations, medical slang and repetitions. The volume would have been more useful had a competent editor removed a considerable portion of the text. It is too long for the general practitioner and too diffuse for the specialist but relatively sound for those who have the time and the inclination to read it.

Ultracentrifugal Studies on Serum and Serum Fractions. By Kai O. Pedersen. Paper. Price, 10 Swedish crowns. Pp. 178, with 34 illustrations. Uppsala: Almqvist & Wiksells Boktryckeri AB, 1945.

The appearance of this volume summarizing work carried out from 1939 to 1944 at the Institute of Physical Chemistry at Uppsala is timely, since it makes available both the experimental work and the approach to problems of an important group of scientists with whom contact has been almost nonexistent during the war. The work throughout emphasizes the necessity for the use both of ultracentrifugal and of electrophoretic analysis as a guide to the study of mixtures of proteins, a point of view which is also generally accepted in this country. Dr. Pedersen reports several fundamental contributions, among which are the establishment of the profound influence of the density of the solution centrifuged on the protein pattern with the resultant demonstration and separation of the X-protein of human serum, a high molecular weight dissociable complex of albumin and globulin containing large amounts of lipid and perhaps carbohydrate. Also of great interest is the discovery that serum of the fetus and the newborn calf contains a protein with a molecular weight of 50,000, called fetuin, not present in the serum of adult animals. These studies will no doubt stimulate intensive investigation into the role of the X-protein and of the fetuins in the organism and provide the point of departure for further intriguing research on the serum proteins.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SULFONAMIDES FOR EAR INFECTIONS

To the Editor:—How effective therapeutically are external ear medicaments containing one or more of the sulfonamides, such as Otomide and Otomosan? Are there clinical or laboratory data substantiating the value and safety of these products when used in the external ear?

M.D., Missouri.

ANSWER.—Infection of the external canal may be due to bacteria or fungi. The effect of local sulfonamide therapy depends on the organism. Infections by gram positive bacteria are likely to be inhibited, while those due to the coliform group of bacilli are resistant to sulfonamides and penicillin. Powdered sulfanilamide has been shown to have a fungistatic effect on Aspergillus, Penicillium and Mucor infections in vitro but not on Monilia, the other sulfonamides having no effect. Clinical results with powdered sulfanilamide and sulfathiazole were reported to be good. Preparations of sulfonamides in a base such as glycerin are less suitable for external ear infections than the dry powder. The local use of sulfonamides offers nothing in acute middle ear suppuration. In chronic suppuration the effectiveness depends on the type of suppuration. Active bone involvement or cholesteatoma is improved only to the extent that secondary invaders are inhibited. In line with the established principle of careful cleaning and drying as the local treatment of choice for simple chronic suppuration, the dry sulfonamide powder is generally preferred to wet preparations or solutions. A local sensitivity to sulfonamides when used in the external and middle ear is relatively common.

REPEATED RABIES PROPHYLAXIS

To the Editor:—A veterinarian has found it necessary to take five series of prophylactic rabies treatments in the last few years. He has developed muscular weakness of both lower extremities, hyperesthesia to a level corresponding to the twelfth dorsal vertebra and retention of urine following the last series. As it will be necessary for him to continue to come in contact with rabid animals, I should like to know if there is any safe prophylactic to be recommended.

I. B. Oldham, M.D., Muskogee, Okla.

ANSWER.—There is no other specific preventive for rabies than rabies vaccine. It seems obvious that the veterinarian should not take any more vaccine treatments but put his reliance on painstaking general measures to prevent rabies infection. Such infection in all probability takes place only through bites by rabid animals, but the possibility of contamination by rabic material of a wound or break in the skin or oral mucous membrane cannot be denied. Undoubtedly the five series of preventive treatments taken have left behind some degree of specific resistance.

ESTROGENIC TREATMENT OF THE MENOPAUSE

To the Editor:—A white woman aged 45 complains of vasomotor flushes, fatigue and digestive distress—especially distention. She has been examined by several physicians in the past two or three years, but no organic lesions have been found. Each has independently prescribed estrogenic therapy with prompt improvement of the nervous complaints, but she promptly develops a copious seromucinous vaginal secretion with unpleasant odor, swelling of the labia and friability of the vaginal wall, so that wiping with cotton will produce bleeding. This has resulted after diethylstilbestrol orally (0.5 to 1 mg. probably) and hypodermically, theelin (2,000 and 10,000 units), estrogenic substance (10,000 units) and estradiol benzoate (10,000 units). I have not found any information on such a complication, but on the last occasion, after estradiol benzoate (10,000 units) I gave 5 units of progestin the next day, with subsidence of discharge and swelling in twelve hours.

C. W. Atherton, M.D., Peoria, Ill.

ANSWER.—That the nervousness and nervous indigestion, the hot flushes, the fatigue and other associated symptoms should and did subside under estrogenic treatment is the expected result. That the woman should develop an increased secretion from the glands of the uterus, cervix and vagina is the normal consequence of estrogenic stimulation of these structures. The unpleasant odor of these secretions may be due to the nature of the flora of the vagina. If there is any blood present, even in small amounts, the decomposition of this blood always causes a disagreeable odor. It is not quite clear whether the labial condition which is described as a swelling is actually a swelling or is a return to the normal fulness and turgescence of the labia from an atrophic condition under the influence of estrogens. The so-called friability of the vaginal wall would be an exceedingly rare and abnormal condition in a woman. A possible explanation of this tendency of the vaginal wall to bleed on wiping with a pledget of cotton might be the presence of flora in the vagina which irritate the turgescent vaginal mucous membrane.

The question states that, "on the last occasion, after estradiol benzoate (10,000 units) I gave 5 units of progestin the next day, with subsidence of discharge and swelling in twelve hours." If only one injection of 10,000 international units of estradiol benzoate was given, and one must infer from the letter that the same reaction recurred from a single injection, then it seems reasonable to surmise that the genital structures described are hypersensitive to estrogens; one would hesitate to use the word allergic in this instance. Patients are usually not allergic to steroids, but they are frequently allergic to the various oils which are used as solvents for the estrogens (peanut oil, corn oil and oil of sesame) and the radicals with which the estrogens are combined. Diethylstilbestrol is not a sterol or natural estrogen. The inquirer indicates that one injection of 5 units of progestin the next day caused a subsidence of the discharge and the swelling in twelve hours. Progestin acts on the genital mucous membranes only after these structures have been stimulated to growth by estrogens, and then the action of progestin is to stimulate secretions further and not to check them. Obviously there are factors operative in the case described which are not easily explained and which require further study.

OVIDUCAL PATENCY AND FERTILITY

To the Editor:—Will you kindly explain the significance of the following clinical observations: A nulliparous white woman aged 38 has had several air insufflations performed, and in each instance closed oviducts were indicated. Similar results were obtained after ten days of antispasmodic therapy with a proprietary antispasmodic. The menstrual history is normal: menses occur every twenty-five to twenty-eight days for three or four days. Bimanual examination did not reveal any abnormalities. A uterosalpingogram with iodized oil disclosed that the uterine cavity filled completely and was fairly large; the uterus was dextroverted; the right oviduct was visualized, and was shown to be not as long as the left oviduct; the oil passed through the fimbriated end. The sphincter of the left oviduct was normal in outline; the tube was very long, with the fimbriated end pointing downward; the oil passed through the fimbriated end. A twenty-four hour examination showed a small amount of free oil in the peritoneal cavity. From the roentgen examination it was concluded that the oviducts are patent at both the inner and the outer ends. However, a subsequent air insufflation again indicated closed oviducts, except for an occasional trickle of air through the tubes. The day following this latest insufflation the patient experienced moderate pain in the left shoulder; this subsided spontaneously after twenty-four hours. Her past history is normal except for severe influenza during the epidemic of 1917. I would appreciate an explanation for the failure of air to pass through the oviducts when the uterosalpingogram showed the oviducts to be patent. What therapy could be instituted to correct this condition so that she may conceive?

M.D., New York.

ANSWER.—Not infrequently when air fails to show patency of the oviducts hysterosalpingography demonstrates that they are open; likewise the reverse is occasionally true, but there is no apparent reason for either of these phenomena. Perhaps, in the case cited, if carbon dioxide is used along with a kymograph, tubal patency will be demonstrated. Even if air and gas fail to pass through the tubes, x-ray examination has demonstrated a spill from the fimbriated ends with free oil in the peritoneal cavity. Hence a careful study should be made of both the patient and her husband for other etiologic factors. The patient is 38 years old, so that she may have quite a few anovulatory menstrual periods; a definite effort, therefore, should be made to determine the date of ovulation by temperature graphs and vaginal smears and instruction given concerning the most favorable dates for coitus. The oviducts require no treatment, but if carbon dioxide will pass, repeated insufflations may help.

CONDENSED MILK—EVAPORATED MILK

To the Editor:—My attention has been called to a reply to a query on infant feeding appearing in the June 30, 1945 issue of The Journal. The question was asked about a formula "of equal parts of condensed milk and water." Condensed milk which contains a large quantity of sugar would not be suitable for infant feeding. It is possible that the reply was written with evaporated milk in mind, which would be suitable for such use. Condensed milk and evaporated milk cannot be used interchangeably, and the distinction between them should be kept in mind.

Katherine Bain, M.D., Washington, D. C.